R E P O R T   R E S U M E S

ED 017 788 AC 001 337

VOCATIONAL TRAINING FOR ADULTS, DOES IT PAY. ARE SPECIAL TECHNIQUES NEEDED. PANEL AND WORKSHOP VII.

BY- MCKECHNIE, GRAEME AND OTHERS

PUB DATE 66

EDRS PRICE MF-$0.50 HC-$2.88 70P.

DESCRIPTORS- *MIDDLE AGED, *VOCATIONAL RETRAINING, *TRAINING TECHNIQUES, STEEL INDUSTRY, MAINTENANCE, PLUMBING, FEDERAL PROGRAMS, ADULT LEARNING, TIME FACTORS (LEARNING), ON THE JOB TRAINING, AGE GROUPS, ECONOMIC FACTORS, COMMUNITY PROGRAMS, ANXIETY, INDIVIDUAL INSTRUCTION, TECHNOLOGICAL ADVANCEMENT, UNEMPLOYMENT, DISCRIMINATORY ATTITUDES (SOCIAL),

A THOROUGH-GOING JOB OF RETRAINING OLDER PERSONS IS NECESSARY TO GET THE JOB PROGRESSION LINE MOVING. FOR MANY YEARS, THE PORT AUTHORITY OF NEW YORK HAS INCLUDED IN ITS TRAINING PROGRAM THE RETRAINING OF MAINTENANCE MEN AT THE JOURNEYMAN AND HELPER LEVEL. BOTH CLASSROOM AND SHOPROOM INSTRUCTION ARE PROVIDED AND BASIC SKILLS AND REMEDIAL EDUCATION INCLUDED. SUCCESS IN TRAINING PLUMBERS, PIPEFITTERS, AND SPRINKLER FITTERS IN THE CONSTRUCTION INDUSTRY HAS SHOWN THE NEED FOR SHORT, PRACTICAL COURSES, VISUAL AIDS, COMPETENT INSTRUCTORS, AND IMMEDIATE APPLICATION OF SKILLS. IN TEN YEARS OF EXPERIMENTAL WORK IN THE STEEL INDUSTRY, ON-THE-JOB TRAINING HAS PROVED MOST PRACTICAL AND EFFECTIVE FOR RETRAINING SUPERVISORS, OPERATORS, AND MAINTENANCE MEN. RESEARCH ON ADULT LEARNING AT DUKE UNIVERSITY HAS SUGGESTED THAT A LEARNING DEFICIT IS NOT TRULY OF LEARNING BUT OF PERFORMANCE AND RECOMMENDS THAT RETRAINING BE A ROUTINE PART OF WORK IN ORDER TO MINIMIZE THE STRESS OF THE LEARNING SITUATION. PROVISION IS MADE UNDER THE ECONOMIC OPPORTUNITY ACT FOR A COMPREHENSIVE PROGRAM OF BASIC EDUCATION, VOCATIONAL TRAINING AND COUNSELING, AND SOCIAL SERVICES FOR THE HARD-CORE UNEMPLOYED, MANY OF WHOM ARE OVER 45 (AMONG TOPICS DISCUSSED WERE THE NEED FOR COST-BENEFIT ANALYSIS AND FOR A CENTRAL LIBRARY.) THESE PAPERS WERE PRESENTED AT THE NATIONAL CONFERENCE ON MANPOWER TRAINING AND THE OLDER WORKER, WASHINGTON, JANUARY 17-19, 1966. (PT)

ED017788

PROCEEDINGS

of

NATIONAL CONFERENCE ON MANPOWER TRAINING AND THE OLDER WORKER

January 17-18-19, 1966
The Shoreham Hotel
Washington, D.C.

Sponsored by
Committee on Employment and Retirement
THE NATIONAL COUNCIL ON THE AGING
a non-profit corporation

in cooperation with
The United States Department of Labor
and
The United States Department of Health,
Education and Welfare

under a project
financed through
The Office of
Manpower Planning, Evaluation and Research (OMPER)
United States Department of Labor

AC 001 337

Page

Panelist:
DR. ELVIN RASOF, Curriculum Consultant, MDTA, Detroit Public Schools and Wayne State University, Detroit, Michigan, "Basics Plus: The Teaching Team" 323

General Workshop Discussion 345

VII.

"Vocational Training for Adults -- Does it Pay? Are Special Techniques Needed?"

Opening Remarks:
HAROLD W. WILLIAMS, Director of Economic Development, W. B. Saunders and Company, Washington, D.C., Chairman 367

Panelist:
GRAEME McKECHNIE, Project Associate, Department of Economics, University of Wisconsin, Madison, Wisconsin, "Does It Pay? A Survey of MDTA Experience" 368

Panelist:
THOMAS J. RILEY, Superintendent of Skills Training, Port of New York Authority, New York City, "From Unskilled To Skilled: Up-Grading At The Port Authority" 377

Panelist:
NORMAN F. PIRON, Assistant Training Director, United Association of Journeymen and Apprentices of the Plumbing and Pipefitting Industry (AFL-CIO), Washington, D.C., "Upgrading For The Space Age" 386

Panelist:
DR. JOSEPH KOPAS, Training Counselor, Republic Steel Corporation, and Director, The Human Engineering Institute, Cleveland, Ohio, "Upgrading For Heavy Industry" 392

Panelist:
DR. CARL EISDORFER, Associate Professor of Psychiatry, Director of Training, Research Coordinator, Center for the Study of Aging and Human Development, Duke University, Durham, N. C., "Psycho-Physiologic Aspects of Adult Learning: A Tentative Theory" 406

General Workshop Discussion 416

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

Panel and Workshop VII

VOCATIONAL TRAINING FOR ADULTS -- DOES IT PAY? ARE SPECIAL TECHNIQUES NEEDED?

The panel was convened at 10:55 a.m., Tuesday, January 18, 1966, Mr. Harold W. Williams, Director of Economic Development, W.B. Saunders and Company, Washington, D. C., presiding.

MR. WILLIAMS: When I saw the opening sentences of a few of the papers to be given today, I decided that the sub-title for the heading of this particular panel session, "Vocational Training for Adults -- Does it Pay?" should be "Can You Teach Old Dogs New Tricks?" And I suppose that the answer to this question is basically what we are after today.

We have a stenographer who is taking down every word and these will be preserved in the proceedings. We also have a recorder, Bill Jacoby, who is the director of the OMPER -- which is probably one of the organizations that the "Man from U.N.C.L.E." is against -- Project for 50's, sponsored by the Cleveland Welfare Federation and the National Council on the Aging. He is going to try to take down the significant bits of wisdom that come from the panel and the participants, and we will try to get them to Chuck Odell in time for his presentation tomorrow.

We also have two very distinguished resource people who will be speaking to you as the spirit moves them and as you ask them questions -- and I hope the spirit will move them.

On my far left is Dr. R. Meredith Belbin who is a consultant for the OECD for research into the problems of industrial training in London, England. He has done his Ph.D. thesis on the employment of older workers. He has been an independent management consultant and been responsible for older worker training demonstration programs in Austria, Sweden, France, Germany, the U.K., Canada, and the United States.

AC 001 337

And on my far right is Mr. Dwight Crum. He is the Assistant Director of Manpower and Training in the Division of Vocational and Technical Education of the U.S. Office of Education, which is in the Department of Health, Education, and Welfare in the Federal Government of the United States of America.

I am Harold Williams, and some of you may also know me as a former Deputy Administrator of the Area Redevelopment Administration which did vocational training and, also, before that, as the Executive Director of the Advisory Board on Problems of Older Workers in Pennsylvania. So, although I may not have any competence to discuss any of these problems, I do have some experience in the field.

Now we are going to get to our first speaker and I know a little bit more about him than he thinks, by the process of deduction, because he is a new father. The reason I can tell you that is because I have two of his resumes here and one of them says "Married, no children," and the other one says, "Married, one child." So we all want to congratulate Mr. McKechnie, who is a project associate of Dr. Gerald G. Somers at the University of Wisconsin in the Industrial Relations Research Institute. He is a graduate of the University of Toronto and got his Master's Degree at Wisconsin and is now working on his Ph.D. and making very, very good progress in that because the original paper said he was going to complete it in the summer and then it was changed to June, and then it was changed to Spring. So we can see this is a man of action who does better than he expects to do.

Mr. McKechnie's subject is "The Older Worker and Retraining -- A Survey of MDTA Experience." Mr. McKechnie.

MR. McKECHNIE: Thank you, Mr. Williams.

The major development in the nation's manpower policy in the last few years has been the initiation of government-sponsored training and retraining programs to deal with the high levels of "prosperity unemployment." Even at present, as the unemployment rate falls below five per cent, the retraining programs remain at the forefront of our manpower policy. Federal legislation, such as the Area Redevelopment Act (ARA), the Trade Expansion Act, the Manpower Development and Training Act (MDTA), the anti-poverty program and amendments to the vocational education system, has supplemented programs initiated by State and local governments. Retraining is often regarded as the cure-all for our labor market problems. However, it must be realized that retraining alone will not create employment opportunities; rather, it can only aid unemployed workers to take advantage of such opportunities.

The emphasis of the retraining programs has not been directed primarily to the solution of the re-employment problems of older workers. There are specific programs which deal with the employment problems of the youth of the nation, such as the Job Corps and Neighborhood Youth Corps for example; however, the group of workers over 45 years of age has been treated rather lightly. It is this latter group which has been called "too old to work, too young to retire." The purpose of this paper is to survey the experiences of the older workers under the government-sponsored retraining programs and to explore the benefits of such retraining for these older workers.

Retraining is Necessary for Older Workers

There have been numerous studies which have explored the experiences of older workers as they search for re-employment after losing their jobs. The older worker, because of his seniority, is usually the last to be laid off, but once laid off because of plant shutdown, changes in technology or changes in the economic climate, he remains unemployed longer than younger workers. Francke, in a study of the experiences of unemployed older workers, found that 46 per cent of workers between the ages 45 and 54 remained unemployed for more than twelve months and 61 per cent of those between 55 and 64 were out of work this length of time.[1] Younger workers do not suffer this long period of unemployment after being laid off. The statistics on long-term unemployment verify this. At the end of the second quarter of 1965, for example, 40 per cent of all unemployed men 45 years of age and over were in the long-term unemployed category--out of work 15 weeks or longer. Only 18 per cent of the unemployed men in the 20-24 age category were out of work that long during this period however.[2] In studies conducted by the Department of Labor, it was found that, in cases where workers over forty were displaced because of plant shutdowns, their unemployement rate was between three and five per cent higher than the overall rate in their labor market area. In some cases, their unemployment rate was five times more than the area rate. Furthermore, many of the older workers left the labor force earlier than they had planned to because of their failure to obtain new employment.[3]

Older workers remain unemployed longer than young workers for a number of reasons. One is that the older person, if he has been employed steadily for any length of time, has been out of the job market and thus, when he becomes unemployed, he is unfamiliar with the techniques of searching for a new job. Francke found that a serious problem with older workers was that they were unaware of the available jobs in their own area.[4] Also, the older worker is less likely to conduct a search for jobs outside his home area since his propensity toward geographic mobility is low. This will decrease the number of opportunities for re-employment, especially if the worker lives in an area of depressed economic conditions. A second reason for the lengthy unemployment of older workers is the unwillingness of many employers to hire workers over 45 years of age. A third reason, and one which has assumed great importance in recent years, is the lack of education and skills of the older worker. Younger workers do have higher educational levels than workers over the age of 45. In March, 1965, the median years of school completed by workers in their twenties was 12.5. This level decreases to 8.9 years for workers over 64. Thus the older worker is at a distinct educational disadvantage when he must compete for jobs with younger, more educated workers. If employers have a choice, such as in times of high unemployment, then they do not have to choose the less educated workers. They will be unwilling to hire an older worker and spend money training him when the number of working years he has left is much less than in the case of younger persons. Thus, if the economy is to make use of the productive years of older workers, government-subsidized retraining will be necessary to equip these people for the available jobs and to remove some of the disadvantages of age and lack of formal education.

---

[1] For footnotes, see Appendix I, Section III., pg. 671

The Older Worker Under Government-Sponsored Retraining

Although the training needs of the older workers will have to be met through government-sponsored programs, one finds that such programs have not succeeded in training a large proportion of these people. Older workers are brought under the training provisions of the Manpower Development and Training Act in three ways: (1) inclusion in the institutional programs held in vocational schools and other classroom facilities; (2) inclusion in the On-the-Job Training programs established with particular employers; and (3) inclusion in the Experimental and Demonstration projects which were established under the amendments to the MDTA in 1963 and 1964.

1. Institutional Instruction

This is the major method of retraining workers under federal legislation. In the years between the inception of the MDTA and ARA programs and the end of 1964, approximately 359,000 unemployed persons had been enrolled for training. In 1964, 110,000 persons were enrolled in MDTA courses--an increase of more than two-thirds over 1963. The prediction for 1965 is that 128,000 persons will enroll. A total of 58,000 completed such courses in 1964. The average cost per trainee in 1964 was $1516.[5] In 1964, the unemployed older worker was greatly under-represented in the number of MDTA enrollees. Workers age 45 and over represented approximately 27 per cent of the unemployed but only about 11 per cent of MDTA institutional enrollees. As can be seen from Table 1, the workers in the lower age groups are over-represented in the training programs with respect to their proportion of the total unemployed. The experience of the older workers under ARA programs is similarly disappointing. Under ARA, the workers over 45 years of age represented 14 per cent of the enrollees in 1964. The proportion of older workers enrolled in government-sponsored retraining has increased since the first courses were offered; however, the increase has been almost negligible.

Table 1

Per Cent Distribution of Enrollees and Unemployed, by Age, 1964

Age	Enrolles	All Unemployed
Under 19 years	14.2%	19.9%
19-21	23.4%	13.8%
22-44	51.5%	39.4%
45 and over	10.9%	26.9%

Source: Manpower Research and Training Under the Manpower Development and Training Act of 1962. A Report of the Secretary of Labor, March 1965, p. 14.

Older workers are not included in numbers proportionate to their rate of unemployment partially because of the screening and recruiting procedures used to select trainees. These procedures cause many of these workers to be rejected because the recruitment is biased against the hard-core, long-term unemployed, since this group's chances of finding employment even when retrained are not as high as the younger, short-term unemployed. The older workers are present in large numbers in the ranks of the long-term unemployed and thus, this selection procedure eliminates many of them. In 1964, the over-45, long-term unemployed represented only about 6 per cent of total MDTA enrollment.[6] However, the older workers represent about 35 per cent of the long term unemployed.

The older workers are also at an educational disadvantage, as previously mentioned. The less-educated workers are not well represented among the enrollees. In 1964, workers with eighth grade education or less represented about 15 per cent of the MDTA enrollees, but were 33 per cent of all unemployed. In contrast, those workers with high school diplomas represented 46 per cent of the enrollees but only 30 per cent of all unemployed.[7]

From the foregoing, one can see that the older workers have not been included in the institutional programs in the same proportion to their rate of unemployment. Unfortunately, it is the older, less-educated worker who needs retraining most, and although the experience in 1964 has improved over the first two years, the availability of retraining to unemployed older workers is still far from adequate for their needs.

2. On-the-Job Training Programs

The On-the-Job Training programs are increasing more rapidly than the institutional programs--in 1963, there were 2,198 OJT trainees enrolled while in 1964, there were 5,476--an increase of over 100 per cent. In 1964 the average cost per trainee completing training under the OJT programs was $590.[8] Unfortunately, as in the institutional programs, the older workers were not present in large numbers. In the OJT programs, the emphasis changed considerably between 1963 and 1964. In 1963 older workers represented approximately 11 per cent of the persons enrolled in OJT programs. In 1964 this proportion fell to 8 per cent. The heavy concentration of trainees in 1964 was in the age group 22-34. Persons with more than 12th grade education represented a higher percentage of trainees in 1964 than in 1963, whereas the percentage of those with eighth grade or less fell slightly. The proportion of long-term unemployed who enrolled in OJT programs remained almost unchanged between 1963 and 1964; however, the proportion of long-term unemployed remained well below that of the short-term unemployed.

The older workers have problems in addition to those they face in the institutional programs when they try to enter OJT courses. Employers have more voice in the selection of the trainees for OJT programs since it is the employer who must supervise the work of the trainee. Many employers distrust too much government intervention and dislike the amount of "red tape" necessary in the operation of the OJT programs. Thus some employers have a general bias against OJT.[9] The bias felt more strongly by older workers is employer discrimination on the basis of age. With such employer feelings, older workers may not be given the opportunity to join OJT programs. This is unfortunate since older workers might be better suited to training on the job rather than taking an institutional course. To be required to revisit the classroom after many years of absence would not be too attractive to the older worker.

3. Experimental and Demonstration Projects

The Experimental and Demonstration projects were designed to aid the disadvantaged groups and, to accomplish this, the "reasonable expectation of employment" provision of MDTA was relaxed. However, the older workers are not being included in these projects to any great extent. The emphasis appears to be on retraining of youth since approximately 84 per cent of those served by such projects were under age 21 while the older worker represented only 2.5 per cent of the enrollees.[10]

From the foregoing one can see that the unemployed older workers have to a large extent been by-passed by the retraining programs which have been designed to enable unemployed workers get jobs. Part of the problem has been in the screening out of older workers while another part of the problem lies with the older worker himself. After prolonged unemployment the worker may lose confidence that he will again be employed and thus not even apply for retraining. To encourage the older worker to apply, some notion of the benefits which he can expect must be provided.

Benefits and Costs of Retraining

There are two main tangible benefits aside from the psychological benefits which may accrue to a trainee. One is increased employment (or at least decreased unemployment) and the other is financial reward.

With respect to employment after training there are gross data on the employment experience of those who completed training under MDTA. Overall, approximately 72 per cent of those completing institutional training in 1964 became employed after their training. The rate of employment for OJT trainees was 94 per cent. The percentage employed after institutional training varies among different age groups, with 73.9 per cent of those 22-34 being employed after training, while 66.9 per cent of those 45 and over were able to obtain employment.[11] Education and length of unemployment before training are also important variables in determining post-training employment. Lower rates of employment were experienced by workers with low education and long-term unemployment before training.[12] Borus in a benefit-cost analysis of retraining, found that the older, less-educated and long-term unemployed workers have fewer opportunities to utilize their retraining and benefit from it than trainees without these characteristics.[13] These data, however, report only the experiences of trainees. It is also important to consider the experiences of groups of workers who were not retrained and compare the two.

Solie found that, after controlling for differences in age, the workers who completed their retraining courses experienced less unemployment and more employment in the 24 month period following training than workers who were rejected for training, dropped out of training or did not apply for training. In fact, persons who completed training experienced a net advantage over persons who did not complete training which can be measured as 8.1 weeks less unemployment and 12.6 weeks more employment in the 24 month period after training. In this study "net" refers to the difference in labor market success after correction for differences in socio-demographic characteristics.[14] With respect to older workers, their labor market experience after training is not as good as that of younger workers; however, older trainees do gain some advantage over younger non-trainees.[15]

There are also financial benefits derived from retraining. David Page and others have indicated that retraining usually provides an excess of benefits over costs--Page calculated the net benefits to be over 3 million dollars.[16] Borus also concluded that retraining was of great benefit to the individual, government and the economy. Unfortunately, there has been little emphasis on the costs and benefits which training can be expected to yield for the older worker. This arises partially out of lack of data because of the small numbers of older workers in samples of trainees. In the West Virginia surveys conducted by Dr. G. G. Somers at the University of Wisconsin, for example, of the 325 persons in the sample who were over age 45, only 79 completed training. When a benefit-cost analysis was performed, the lack of necessary data for such analysis in some questionnaires and the small sample size in narrow age categories made it impossible to conduct a separate tabulation for older workers However, comparisons were made between trainees and non-trainees and within the broad age groups of under 35 and 35-54 and within broad educational categories of under 12 years of education and 12 years and over.[17] The analysis shows that in the large majority of cases, the trainees had greater earnings after training than did a control group of non-trainees. However, the older workers did not benefit as much with respect to earnings as did the younger workers. Calculations show that the costs of training are paid back in a relatively short period of time; furthermore the rate of return on the retraining is quite high. Borus also found this to be the case.

Summary and Conclusions

The older workers have not been included in retraining programs to the extent warranted by their unemployment experience. This is an unfortunate situation. The older trainees do reap benefits in the form of employment and earnings. Their post-training employment experience is likely to be an improvement over their pre-training experience. They have better post-training experience than non-trainees in employment and income; however, their experience has not been as good as that of younger trainees.

There is an obvious need for more studies of the benefits and costs of retraining with particular emphasis on older workers. The use of broad age groupings often disguises many important facts. To do this, however, researchers need both good benefit-cost data and a large number of older trainees. If these two needs are met, then unemployed older workers can be presented with concrete evidence of the effectiveness of retraining.

The screening procedures for the institutional programs must be amended so that the "cream of the unemployed" are not skimmed off and trained. Care must be taken to train those who would remain unemployed without such instruction. The unemployed, younger, more educated worker appears to have a better chance of re-employment without retraining than does the older worker.

The OJT programs should be made more available to older workers. Unfortunately, the selection procedure will reflect the employer practices in hiring at any given time. To overcome this, the program to retrain and hire older workers will have to receive community support and active job development will be required. This is both a time consuming and costly task but it will be necessary.

The older worker will benefit from retraining. Retraining is a sound investment for all parties concerned. Thus the programs to retrain the unemployed must be expanded to include more older workers.

(Applause.)

MR. WILLIAMS: Thank you very much, Mr. McKechnie. I am going to give you your Ph.D. right now and call you Dr. McKechnie for that very, very lucid exposition of this problem.

If anybody does have a question or comment right now on Mr. McKechnie's paper, we might take it. Otherwise, we can wait until this afternoon.

Yes sir. Will you identify yourself.

MR. WOODS: Yes, sir. My name is Frank Woods and I am from the State Department of Education in Connecticut.

Much has been said the last couple of days about the benefits of OJT for the older worker. Along with this, we have been getting a picture of the institutional phase of MDTA which seems to indicate that an older person resents or is afraid of this classroom situation wherein he is brought into a school, assigned to a classroom and, quote, made to read a lot of books, unquote.

I think this is really not a clear definition of institutional training.

By and large, the term institutional training implies that an individual is brought into an actual work situation where there is no production, so that if we take, for example, a machine operator, he is indeed brought to a school and a simulated classroom situation. But by and large, I would say 75 per cent of his time is out in a shop situation, but not on the job.

I think this ought to be made clear to this group, that when we talk institutional training, we are not talking about just a classroom situation. Otherwise, I think whatever recommendations come out of this group may indeed be slanted towards OJT without really a clear definition of the two alternatives.

That is number one.

Number two, the implication here, also, is that the fact that there is a greater percentage of employment and therefore a greater holding power necessarily means that were we to shunt the older worker to OJT, the chances of employment would be far greater. I submit that the whole selection procedure under OJT guarantees this employment, that the associations, that the companies who agree to the sub-contracts under OJT have a great deal to say about the type of person that they are going to employ. This is not true of the institutional portion of MDTA training. And consequently, again, I think we are getting a disjointed view of the relative success of both of these programs.

And I think it is interesting to note, as Mr. McKechnie pointed out, in spite of increased activity under OJT, the proportion of older workers being taken care of has decreased.

MR. McKECHNIE: I should make clear and expand my definition of institutional training. I didn't mean to imply it was all desk learning. They are in shop situations. Nevertheless, it still means the older worker must go back to school, something he has not attended for a number of years.

In addition, although he is in a shop situation, he is not productive. Whatever he produces is not going to be sold. He is not being paid for his production. His retraining subsistence is certainly not a payment.

So, therefore, for someone who is used to being productive, this one period of retraining could very well lead to a feeling of uselessness. It is almost a sheltered workshop idea. And I think this is what an older worker would object to, in contrast to OJT where he is actually being paid and can see what he is producing coming out the other end of his machine.

MR. WOODS: But we don't know this for a fact, do we?

MR. McKECHNIE: No, I am surmising the older worker will perhaps feel this way.

MR. WILLIAMS: I am going to make a note that this problem will be one of the significant items for discussion -- that is, the relationship of the older worker to institutional training and On-the-Job Training -- this afternoon.

However, if there is someone who wants to make a comment right now, you are certainly welcome to do it.

DR. RUTH M. LAWS (Supervisor, Planning and Research, Vocational Education, State Department of Public Instruction, Dover, Delaware): I would like to reinforce your statement of disagreement relative to this clear-cut, either/or definition of institutional training as being more appropriate for youth and On-the-Job as being more appropriate for adults.

In fact, the youth we bring in for institutional training would not profit, either, if they experienced training in a strict school situation. Many of them have experienced failure in school and are not willing to go back to a limited school situation. A practical-experience type of program in which there is some On-the-Job Training is essential, even for youth, if we expect them to succeed in it.

So I think there is too much of a clear-cut differentiation here, and I am not sure it is a valid viewpoint.

MR. WILLIAMS: I think that is a valuable comment.

MISS IRENE BOOTHE (Altrusa International, McLean, Virginia): As you recall, the first MDTA provided a matching arrangement with the States for paying the training allowances, and a number of State agencies at that time who were in MDTA felt they had to train people they could place rather quickly, in order to impress their Legislatures that they ought to keep the program going. And this was some of the reason that the screening was as it was under the first MDTA Act, I think.

MR. WILLIAMS: I think that is also a very, very valid comment.

MISS BOOTHE: Because you had to have some product. It was unfortunate. As you remember, there was a change and the repayment was pushed back and finally done away with and it became a Federal program. But in the early days the States were going to have to pay the MDTA allowances and had to have something to show their Legislatures, therefore, the agencies didn't touch the hard core. They took the cream of the crop.

We saw this very early in the program and started doing something about it.

MR. WILLIAMS: Good.

Now, I would like to go on with the presentations, if I may, and hold the further comments, if you will make notes of them.

I think these few comments after each speaker do give us an opportunity to pin down in our minds some of the points they have made.

We have a very distinguished panel here today and probably no man more distinguished than our next speaker, who is one of the leading authorities in the field of apprenticeship and On-the-Job Training in the country today.

Mr. Thomas J. Riley is the Superintendent of Skills Training for the Port of New York Authority. His programs cover electrical, automotive, air conditioning, heating, driver training. They have been praised by authorities from all over as some of the best training programs in the country. And he is a recognized authority, Chairman of the National Transportation and Apprenticeship Conference. He has received the Port Authority Executive Director's Award for Achievement, and he gets hundreds of visitors a year to watch his training programs and to learn from him.

So I think that we are very privileged this morning to have Mr. Thomas J. Riley of the Port of New York Authority to talk on the subject, "From Unskilled to Skilled: Upgrading at the Port Authority." Mr. Riley.

MR. RILEY: Thank you for that wonderful introduction. Too bad the executive director wasn't here to hear it.

Before I start I would like to give you a little idea of what the Port of New York Authority is, so you can fully understand the type of training we go into.

The Port of New York Authority is a bi-state agency, controlled by both the State of New York and the State of New Jersey. We operate all of the major airports in the metropolitan district: Kennedy Airport, Newark Airport, Teterboro Airport. We operate truck terminals, bus terminals, marine terminals. We operate a railroad. We are going to build the World Trade Center, which will be one of the largest operations in the world. And we also operate grain terminals, 7-1/2 miles of piers in the Brooklyn area, and we go into quite a bit of marine training.

That will give you a little idea of the magnitude of the Port Authority's operation.

Now, we started skills training in the Port Authority in 1946. To date we have trained approximately 8,000 employees in 29 different types of program covering every phase of maintenance skills, airport operations, truck operations, and marine operations.

Although we started in 1946, we didn't feel the manpower pinch in certain skills until 1954. At that time, due to the many changes in the automotive field and the heating and air conditioning field, we found that the mechanics we had at that time could not handle the new equipment coming in. We found we were having a shortage at the senior journeyman level or foreman level.

The average ages of the employees in these fields were: at the journeyman level, 43 years of age; at the helper level, 48 years of age. Here we found the helper was older than the journeyman.

Most of these employees had not had any training since they had left school approximately 25 years before. We were not ready to put them out of their jobs. We didn't want to do this. So we had only one alternative. That was to take these people and to retrain them. We did an intensive study of all the training programs in these fields throughout the country, in private schools, vocational schools, and in industry.

After this intensive study, we decided to conduct the training ourselves and to take the following steps:

Number one, to establish a two-year in-service retraining program for the entire force, which at that time consisted of 300 men. We first conducted prognostic and diagnostic tests to determine the level of instruction. In order not to frighten these men or to bore them, the instruction was entirely trade-oriented. It consisted of both class and shoproom instruction.

Training was conducted two nights per week, three hours per night. We had two hours of supervised instruction and one hour of supervised study. The one hour of supervised study was to take care of the man who had a problem that he couldn't solve or did not know the correct answer to. The instructor was there on the scene to help him.

Our instructors were of two different types: professional or licensed teachers and Port Authority engineers or maintenance specialists. The professional teacher had to have either a New York or New Jersey teaching license, six years of experience in the field in which he was teaching, a Mechanical Engineer's degree or an Electrical Engineer's degree, according to which program we were going to put him into.

The engineering or maintenance skills specialist had to have at least six years of experience in his particular field. If he was going to teach theory, he had to have either a Mechanical Engineering degree or an Electrical Engineering degree.

The training covered all phases of the operation. We started out with mathematics -- basic arithmetic, right on up; basic English, technical reading comprehension, all of the different types of theory, AC theory, DC theory, everything involved in the particular trade.

Now, we didn't just go ahead and jump into a training program. We selected 26 men to form an advisory committee in the Port Authority. These 26 men came from all the different fields: Engineering, maintenance, operations. We sat them down and asked them what they thought should go into the program; what phase they would like to see covered most of all.

After a careful study of that, we then went ahead and developed the program outline.

Next, textbooks are most important. The same committee of 26 men reviewed every available text we could find connected with these trades. They suggested the texts. We then submitted the texts to many of the instructors to see what they thought. Finally, we selected what we thought were the best possible texts for the program.

In addition to the evening program, we set up a three month, full-time in-service training program for these people.

You have to keep in mind that these are people ranging anywhere from 43 years of age to 48 years of age who hadn't been to school for quite a while. It was quite gratifying to note that throughout the program, even though we were dealing with a shift situation, 24 hours a day, the trainee attendance averaged 95 per cent. Approximately 90 per cent of the men successfully completed the program. Ninety per cent of the electricians were promoted to senior electrician, as a result of a competitive examination at the end of the program. This program was a great success. We didn't stop here, though. In order to keep these people moving and to keep them up to date with the changes in their particular fields, we conducted further upgrading and retraining programs. In the electrical field, for example, we went into high tension, electronic training, and what-not.

In order to alleviate shortages in the future at the lower level, we established two different sets of programs. One is a pre-apprentice program, whereby we take a man who has no skills and we put him through what we call our General Maintenance Training Program, which consists of the basic fundamentals in 22 different trades. This gives a man an idea of how to use his hands. It may even lead him to the trade that he may like best. In this we cover everything from electrical work, tinsmithing, paving, glazing, rigging, anything that you can think of in any of the maintenance or construction trades. This is a six-month program, again two nights a week, three hours a night. This program we run day and night because of the shift situation.

We have been operating this program quite successfully for the past ten years, and we have seen some real great results. We have no age limits. We range in age anywhere from 18 years to 55 years of age.

We also started apprentice programs. We have three very highly successful apprentice programs. One is automotive; another is in the electrical field; another is in heating and air conditioning. In the metropolitan area of New York, these are the three fields in which we have shortages in labor.

I had quite a bit of opposition when we started the apprentice programs because quite a number of people were under the misapprehension that the United States Bureau of Apprenticeship and Training exercised quite a bit of control over your operation. I found that this was not so. I found that Ed Goshen, who headed up the program at that time, was quite helpful and that we did get wonderful cooperation from the Department.

I predicted when we started this apprenticeship program that, if we continued our upgrading program, we could take a boy at 17 with a high school education or high school equivalency, and by the time he was 19, make him a full-fledged journeyman.

Now, we are not operating a two-year apprenticeship program. We are basically a four-year apprenticeship program. But if a man at the end of two years of training can take a competitive examination for electrician, for example, and pass it, and continue in our program in the evening, he can be promoted to a full-fledged electrician.

Four years ago we graduated the first 19-year-old electricians. Today these same 19-year-old boys at 23 are senior electricians. Before they are 30, they can be foremen, if they continue to take the different training programs which we offer.

This does not mean our apprenticeship programs are limited to 17-year-old boys. I have in my program at the present time men who are 51 and 52 years of age. I would say the average age of my apprentices is roughly around 28 years of age, boys who have been in service who have come out. We have been highly successful there. We run about a 95 per cent attendance and roughly, again, about a 90 per cent successful completion.

Now, we have run into other areas of retraining problems. For example, we also operate bridges and tunnels. At the Holland and Lincoln tunnels, we have huge ventilating systems. We had 16 men there called tunnel equipment maintainers. Their equipment was being converted to be electronically controlled. The average age of the group was 54, average education was 10th grade. We found we could no longer use these men as tunnel equipment maintainers.

We did a study and found that the majority of them had an electrical background. We had a shortage of electricians. So we offered them a two-year in-service retraining program for electricians. Again we ran into the same wonderful results. We wound up with 80 per cent of the men successfully completing the program. This is even though the average age was 54.

At that stage of the game, I thought I was over the bridge; I wasn't going to have any more trouble with older employees. But the Port Authority decided, at the request of the States of New York and New Jersey, that they should acquire the old Hudson and Manhattan Railroad. And when I say "old," I mean old. The equipment there ran anywhere from 40 to 60 years of age. We had roughly 1,475 employees. The average age was 51. The average education was grammar school.

We ran into a nice problem. We acquired 200 brand new air-conditioned cars, electronically controlled, all of the latest equipment; put in a new signal system. And here we have a force of 1,475 people who have never handled anything but the oldest equipment available.

We started a two-year voluntary training program for these people. We have been on the way now for six months. The program looks like it will be highly effective.

Again, rather than let these people go, we decided to retrain them. (With any new employees, of course, we are setting up the apprentice programs whereby we can feed in good, trained, qualified people.)

As if this portion of the problem wasn't enough, the average age of the supervisory force was 56. Again we had to set up not only supervisory training for these people, but technical training so that they could properly supervise these people in the maintenance of the equipment.

This program is now underway, and I hope it is as successful as the rest of ou programs.

Now, there is one portion of the Port Authority operation that some of you people may not be familiar with. The Port Authority, in conjunction with the City of New York, is now operating what is known as the BEST training program. BEST stands for Basic Essential Skills Training.

In this program we are committed to train 6,000 people in the coming year. We are training them in six basic skills: heavy duty truck driving; oil burner repair; air conditioning repair; general maintenance; building sanitation; and gardening.

This program to date has been under way roughly about six months. We have had roughly around 1,600 people who have successfully completed the program. We are running about a 75 per cent placement, which is good.

The Welfare Department of the City of New York has closed 350 welfare cases, which means a saving of about $1.5 million for the City of New York in welfare funds. The program cost runs, for one year, $1.8 million. The average age of these trainees, by the way, runs around 36 years of age.

We go into all the remedial education: math, English, all the way down the line --all your preparation for employment, pre-testing, employment interviews, and everything else. The man goes to school 40 hours a week, regular working hours -- eight in the morning until four in the afternoon. He comes to the training and receives no compensation. If he is on welfare, he continues to receive his welfare. If he is on unemployment insurance, he continues to receive his unemployment benefits.

Roughly 40 per cent of the people in training receive no benefits whatsoever, and it is something really worthwhile seeing and appreciaiting it. I didn't think we had this type of people any longer and it was quite gratifying to watch it and be a part of it.

That is about all I have to say. Thank you.

(Applause.)

MR. WILLIAMS: Thank you very much, Mr. Riley, for a very revealing presentation. And I get from your presentation the fact that, given the proper application and direction, you can conduct successful training programs for older persons, at least those who are presently employed; you are suggesting also the same thing can be done for the unemployed; that your cost-benefit ratio is pretty good.

Are there some questions for Mr. Riley?

MISS HELEN B. HAMER (Chief, Program Development Branch, Bureau of Family Services, U. S. Department of Health, Education and Welfare, Washington, D. C.): I am interested in the welfare angle.

In this BEST program you talked about, who are the people you trained? Are these people who applied for jobs at the Port Authority?

MR. RILEY: No, these are people who are attracted to the program by the City. They are not forced into the program or anything else. We do have spot announcements on radio and TV, and this is the way we are attracting them. We do have two recruitment offices, one handled by the New York City Department of Welfare and one handled by the New York City Department of Labor. But it is done on an entirely voluntary basis on the part of the trainee.

MISS HAMER: You are essentially running this program to get staff for Port Authority.

MR. RILEY: No.

MISS HAMER: No? Well, why are you running it?

MR. RILEY: This is to take people who do not have skills and provide them with the skills that are necessary for them to obtain employment in any industry in the New York Area.

MISS HAMER: You mean this is a sort of independent training program run by the Port Authority?

MR. RILEY: The Port Authority and the City of New York. The City of New York is paying for the training, itself. We are providing the training facilities and my supervisory talents, if you may call them that.

MISS HAMER: I see.

MR. WILLIAMS: Yes, sir. Mr. Jacoby.

MR. JACOBY: It may be a little out of line for me, as a recorder here, to ask these questions.

One, I would like to make a statement. Yesterday morning, Mr. Ulrich talked about the fact that we should look at ourselves as trainers as to the success of such programs. I think Mr. Riley has brought out the fact that with good, solid training, programs are successful.

Second is a question: The Port Authority evidently felt that it was cheaper and better to retrain that it was to rehire. That is in the form of a question, Mr. Riley.

Then, was there a feeling of community responsitility which urged the Port Authority to take on this kind of task?

MR. RILEY: Well, one of the prime purposes of the Port Authority is to develop the Port of New York, which covers a 40-mile radius around the Statue of Liberty. Having all these people unemployed affects the economic growth of the Port area. So we were not only providing a community service, we were performing a job which we were supposed to perform.

We have many small communities in the metropolitan area, many small cities around the metropolitan area. They couldn't develop or provide training of this type on such a large scale on their own. For instance, the City of Newark now has asked the Port Authority to help set up training programs in the City of Newark. We are working with the New Jersey State Board of Education now, and I understand -- in fact, it just happened yesterday -- that they have okayed the first program for the City of Newark and that is going to be a truck driving program.

Now, the interesting part about these programs is that they are short-term programs. Within a two-month or three-month time we can give a man the skills to go out and get a job, a well-paying job. I am not just talking about a $1.25 an hour job. In the bus driving and truck driving area, I am talking about a man who is getting $3.25 or $3.50. Some of our graduates are bringing home close to $200 a week in that particular area.

In oil burner repair, I am talking about a man making anywhere from $2.75 to $3.00 an hour. So I am talking about well-paying jobs and in a short time. I am not talking about two or three years. I am talking about two months to three months.

Building sanitation, which a lot of people look down on, is a very highly skilled field today. An entrance level porter, for instance, starts out with $81 a week. Within a year's time he can be making close to $120 if he applies himself.

So we are not just talking about low-paying jobs or long-term training.

I believe in long-term training; don't get me wrong. But I think the best way to alleviate this business of unemployment among the aged is to take people at the right age and teach them a fact that we all know, that you never stop training; you continue with your training and retraining and upgrading.

This we have done in the Port Authority and we have been highly successful.

MR. JACOBY: What kind of cost per man do you have at the present time, that is preliminary training?

MR. RILEY: In the Poverty program?

MR. JACOBY: No, I am talking about your program at the Port Authority. What does it cost you to retrain a man, as an average?

MR. RILEY: I don't have any figures. It is very low. I can make them available.

MR. JACOBY: I think this might be very interesting, in comparison to hiring costs. After all, it does cost you money to hire a new man and it takes time for him to assimilate knowledge just on the job, even though he may be skilled. If you take an electrician and throw him into the Holland Tunnel, it will take him a while to know his way around. During that time he is only partially productive.

MR. RILEY: He runs about 75 per cent productive.

A VOICE: He is talking about the cost of job turnover. It runs around $450.

MR. JACOBY: I know what it is in industry. I wondered what his costs might be in retraining.

MR. RILEY: It runs very low. In many cases, most of the training, you know, is done on the employee's own time in these evening classes. So all you are concerned with would be the instructor's cost, period. If you took a group -- I will do this fast, or you can do it for me -- 300 hours of instruction at $8 per hour, that would be $2,400. Each class would contain -- I go for a maximum of 15 men in a classroom situation. And a shop situation would be anywhere from 6 to 10.

That will give you a rough idea of what your costs would be per man.

We have the space available, so there is no problem there. The equipment has been handed down through the years.

We salvage all of our equipment, by the way. It is very seldom we go out and buy new equipment. When we are demolishing buildings, we strip the building and bring everything in and re-use it.

MR. ALBERT J. OLSEN (Consultant, Division of Welfare, National Lutheran Council, New York City): I was interested in your point in this BEST program in which you said the average age was 36. Would you have an idea of the number of older workers in this group, even though the average age is 36? You say there are 6,000 in the program?

MR. RILEY: There will be 6,000 by the end of the year.

MR. OLSEN: Do you know what part of it would be older workers?

MR. RILEY: Say, over 45?

MR. OLSEN: I would say over 55.

MR. RILEY: I would say it would run about 15 per cent.

MR. OLSEN: Fifteen per cent of 6,000?

MR. RILEY: Yes. That is roughly.

MR. WILLIAMS: Did you have a question, sir?

MR. HOLCOLMB (Bureau of National Affairs): I was curious about the cost. You mentioned $1.8 million. Was that for the entire BEST program, 6,000 people?

MR. RILEY: That is for the entire operation for one year.

MR. HOLCOLMB: But these are short-time training programs?

MR. RILEY: Two to three months.

MR. HOLCOLMB: In all categories?

MR. RILEY: Yes. And to date we have the cooperation of every union involved, Teamsters, Building Service employees, Air Conditioning and Oil Burner people. In fact, we have had close to $100,000 worth of oil burner and air conditioning equipment donated by the industry and unions involved. We have had 10 tractors and trailers donated by the trucking industry, and we have full cooperation of the Teamsters and the trucking industry.

MR. HOLCOLMB: In that cost you are not including the unemployment compensation or welfare benefits.

MR. RILEY: No, the training course. I am not involved in the other phase of it.

MR. WILLIAMS: Unfortunately, we have reached the point where we are supposed to get you over to lunch so you will be back here at 1:15.

(Whereupon, at 12:10 p.m., a luncheon recess was taken until 1:15 p.m.)

AFTERNOON SESSION

MR. WILLIAMS: We shall proceed with the next speaker who has been a journeyman plumber and also a plumbing instructor for the Wisconsin Vocational Schools. He is now Assistant Director of Training for the United Association of Journeymen and Apprentices of the Plumbing and Pipefitting Industry of the U.S.A. and Canada. Our speaker is also secretary of the National Joint Plumbing Apprenticeship Committee, and I think very well qualified to tell us about the program of the United Association and what it is doing by way of training older persons. He is Norman F. Piron, Assistant Training Director of the United Association Training Department for Apprentices and Journeymen. His subject: "Upgrading for the Space Age."

MR. PIRON: Thank you, Mr. Chairman.

I might say I am substituting for the director of our Training Department. I will present the paper that was prepared for this panel, and I think the time schedule will allow for a few additional remarks.

"You can't teach an old dog new tricks" is a tired old axiom applied on occasion to the human race.

It's a pat saying that has enabled many an employer and training director to sidestep logic and stick with tradition. How wrong they can be has been amply demonstrated by the United Association during the past 12 years. With the cooperation of management, industry and educators, we have shown that one doesn't have to be a green youngster to absorb new ideas, new techniques, or new methods.

The steady advance of technology in our industry is making constant new demands on the skills of our workers, young and old. These demands could have lowered the curtain for many of our veteran skilled craftsmen. The ultimate result has been exactly the opposite, however, because labor and management and education joined forces to make advancing technology a positive and useful agent for better skills, better conditions, and better pay.

The United Association made a simple decision, based on the fact that nothing is permanent except change, and channeled its energies to make certain that all of its members, both working and potential, kept pace with it. If it was necessary to instruct apprentices in the latest techniques, methods, and processes, it would be just as necessary to instruct the working membership in these same new challenges. It was a matter of first things first, however, and it was obvious that before anyone could be taught anything, there would have to be instructors who knew how and what to teach. That is why the UA became involved with Purdue University in a program of instruction for instructors.

We began in 1954 with 66 instructor-students, in a study program lasting for one week. After five successful annual programs, the UA and Purdue developed a more extensive course of instruction in a 5-year course which would result in a certificate from the university.

In 1965, we had 600 instructor-students learning everything from atomic radiation safety to advanced hydronic heating and cooling, as well as trigonometry and applied English grammar.

Specifically, the annual training course for instructors of journeymen and apprentices is designed to:

1. Prepare UA instructors to become proficient in the use of techniques of instructing and instructional materials.

2. Acquaint instructors with the philosophy and principles of education, especially trade, industrial and technical education.

3. Provide learning experiences in the principles and fundamentals of the applied knowledge -- subjects such as science, mathematics, drawing, English, basic economics, and so forth.

4. Broaden and deepen the understanding of the instructor in the technical aspects of the crafts and bring information to the instructors about the latest developments in this area.

The uninitiated might say that such a design seems a bit too sophisticated for practical absorption and application by plumbers, pipefitters and sprinkler fitters. The answer is apparent: The apprentices as well as the veteran plumbers, pipefitters and sprinkler fitters have been deeply involved from the beginning in the new skill demands of the atomic and areospace age.

UA journeymen at work in atomic plants must fit pipes to tolerances of less than 1/10,000 of an inch and be able to conduct steam from atomic furnaces at temperatures so high that the alloy pipe, costing as much as $1,100 per foot, must be cooled from the outside to prevent it from melting.

Plumbers, pipefitters and sprinkler fitters must know the properties of metals and alloys and have some knowledge of metallurgical processes. A few years ago, heliarc, short arc, and plastic welding techniques were virtually unknown. Many techniques unknown a decade ago are now common procedures within the work jurisdiction of our industry. Instructing our membership in these techniques was a job that someone had to do if the stern, unbending performance requirements were to be met.

The valuable skills honed through years of experience by our veteran journeymen could not be relegated to the slag heap. But this total training approach is costly and continuing. It could not be reserved only for the training of apprentices. The journeyman of 10, 20, and 30 years' experience was still the backbone of a contractor's work force.

The growing demand for new skills was creating problems for contractors, too. Individual contractors frequently had to spend large sums at the job site to give special training to their work crews before construction could even begin. One contractor on a big refinery job, for example, spent $250,000 for training craftsmen in modern welding methods.

Agreement was reached in 1956 between the National Constructor Association and the United Association to establish an industry-wide fund, to be administered jointly, as a constantly-replenished pool of resources for training in the plumbing, pipefitting, and sprinkler fitting crafts. Called the International Training Fund, it is supported entirely by NCA constructor payments based upon man hours worked by UA members for contractors of the NCA. Through this continent-wide service, talent, funds, and facilities are coordinated to bring the best of all to bear on local training problems. Five ITF training coordinators service the areas of the United States and Canada, reporting to an administrator and assisting local training programs.

Since its establishment, the ITF has been an effective instrument for funneling financial assistance and expert advice to those localities where they are most needed and will do the most good for the worker, contractor, and the nation.

The UA operates 144 schools today, financed by local funds with the help from the ITF. The principal expenditures have been for equipment and training aids aimed at the practical aspects of the training offered. We also sponsor classes for veteran craftsmen in foreman training and superintendent training.

All of these programs are under the over-all supervision of advisory committees made up of representatives of the UA and the contractors' associations. Let me point out that management has always been ready to assist in the local and national training efforts necessary for shoring up the skills of the craftsman.

Our experience with the veteran plumber, pipefitter, and sprinkler fitter has enabled us to draw some broad generalities about what instructional courses should consist of and how to apply them. The most effective results have been obtained by:

1. Short courses. Instruction should be limited to two or three hours a week stretching over several weeks, depending on the extent of the new skill being taught.

2. Practical courses. While theory is becoming more and more a prime requisite as an integral part of the over-all skill employment, the course should be so designed as to weave the scientific fact into the practical application. Separating theory and practice will not work. The older worker is impatient with time spent on information not related directly to his work.

3. Competent instructors. The older worker has a tremendous amount of experience and know-how gained over the years. The person chosen to instruct him should have this basic background also or face the problem of not being taken seriously. The psychology of training is what I am talking about. If instructor and student are not talking the same language, the training will be less effective.

4. Immediate application. What is being taught should have immediate and practical application since practice is the key to retention and the immediate need to know is the best incentive to learn.

5. Visual aids. Visual aids should be employed whenever possible, coupled with demonstration and practice.

We have found that the man who knows his job and has been doing it well for many years is easier to retrain for a refinement of his basic skill than an apprentice who must learn fundamentals first.

There is no question that these programs have been highly successful over the years.

There is no question also, that the veteran, older worker in our crafts has been the bulwark of our industrial achievements on land, on sea, and in space.

In addition to the contents of this paper, I would like to add a few comments: We are obviously concerned with the welfare of the older worker in our industry. Production is just as important in the construction industry as in any other. Production is especially important when you are working for the low bidder.

Because of the physical requirements of our work, production in some areas can slow down with age. You have probably noticed in your travels the amount and size of piping installed for an oil refinery or chemical plant. This type of work is installed by pipefitters. Much of the work in a fire protection system is done overhead. This means working on ladders and scaffolding. A plumbing system starts with piping in trenches and ends with pipes extending through the roofs of buildings. These are examples of work requiring physical activities such as lifting, bending, kneeling, and climbing.

Service and maintenance work is one area where a broad background of experience can be an advantage for older workers. One major problem, however, is that many of the jobs requiring less physical effort, such as foreman, estimator, or instructor, require broad knowledge and experience along with special skills and aptitudes. In order to assist older workers, we have prepared instructional materials which will enable them to obtain skills to offset slowing down in physical capacities.

Since many employers are interested primarily in hiring younger men, we have found it necessary to require in some bargaining agreements the employment of a percentage of older workers. This helps assure the employment of men who have given years of satisfactory service to the industry and the public. Financial assistance to local training programs by the International Training Fund was mentioned. Since 1958, over $7.5 million has been distributed to over 400 local training committees. This has enabled satisfactory programs to be conducted where local school funds were limited or unavailable. Although a major part of our training activities is devoted to apprenticeship, we feel we must also continue to be concerned about the employment of our older members.

(Applause.)

MR. WILLIAMS: Thank you very much, Mr. Prion.

I continually have been impressed now through three of our speakers with the very, very high quality of the papers and the very practical nature of them, and I am particularly impressed with some very specific suggestions which have come out of this paper and which we will certainly want to discuss at greater length later on.

However, I would now throw the meeting open for some direct questions to our last speaker.

Yes, sir.

MR. RICHARD LUER (OMPER-NCOA Older Workers Relocation Project, South Bend, Indiana): I would like to ask Mr. Piron how he can justify upgraders to the apprentice graduates that have spent four years upgrading? Where do you get this upgrader to start with?

MR. PIRON: When we are talking about upgrading, we are talking about upgrading our present journeymen, men who have been working as journeymen for some time, who may need refresher courses, new skills, and so forth.

MR. LUER: There is no change in the apprenticeship program, then.

MR. PIRON: No. We are concerned here, our entire panel, with older workers, and this is an aspect of attempts to upgrade the older worker within the industry. It has no effect on the apprentice program, as such.

MR. LUER: Do you think the apprenticeship training time could be cut substantially in the pipefitting industry?

MR. PIRON: Well, what do you mean by "cut substantially"? Timewise?

MR. LUER: It is about four years now. Could that be cut in half? I would like to have Mr. Riley answer something on this, too.

MR. PIRON: Traditionally, it has been a five-year program in our craft, regardless of whether it might be plumbing, pipefitting, or sprinkler fitting, the three principal areas of the work of our members. While some suggestions have been made for shortening this term of apprenticeship, the five-year program has been traditional for many, many years, and I feel that this is necessary. I think you have to consider apprenticeship in several different lights.

The customer expects, at the end of an apprenticeship, a skilled worker. I think you could take several subjects -- if you wanted to pick isolated subjects -- and say, "I can teach this subject or how to do this skill in a comparatively short time," but knowing a certain subject or how to do a certain skill is different from being thoroughly skilled in this particular application or the application of this subject.

Our apprentices, in order to get the wide variety of training we think necessary, have to depend sometimes on economic conditions, the kind of work that is available in the community. They have to depend on the types of jobs that a contractor will get. And it is pretty difficult to say, "We are going to have a number of apprentices in any of these particular fields and they are all going to start on this kind of building construction or this kind of system; they are going to work definitely this many months on this kind of work, and we are going to route them through a specific program of this kind.

I presume much of this kind of thing can be done in some in-plant apprenticeship programs, but in the construction industry there are so many variables that it is pretty much accepted by our organization and the contractor organizations with which we work jointly in these programs, that there is no particular reason for shortening appreciably the five-year apprentice program as it exists today. New technologies, automation and many new developments tend to complicate things in some areas rather than simplify them, so I think the five-year training program has been pretty well established and will remain so for some time.

MR. WILLIAMS: Mr. Riley, do you want to make a comment on that or do you want to hold it until discussion later on?

MR. RILEY: I am going to have to be leaving in a half-hour.

MR. WILLIAMS: Now is your time to comment on that, if you like.

MR. RILEY: In my particular apprentice programs in the Port Authority, we are talking about maintenance journeymen. We are not talking about construction journeymen, which is what I believe you have been covering.

MR. PIRON: Yes.

MR. RILEY: So we are talking about two different types of animals.

Number one, the Port Authority program is an in-plant training program. In the two years of training that we give our apprentices, we cover the same approximate number of hours normally covered in the outside apprentice program in four years. We don't stop for vacations; we don't shut down in the summertime; and we do have the three months of full-time training that we give the apprentice. This is in addition to the two nights a week, three hours a night.

In addition to all this, he still gets two years of on-the-job training under skilled mechanical supervision. This is something I don't think you can do on a construction job because the apprentice is bouncing from one job to another. So to cover all the particular areas that he should cover would take much longer in the construction industry.

MR. WILLIAMS: Well, as I have had occasion to repeat several times, we do have exceptionally well qualified people here today. I am just constantly astonished at the background of our speakers and their pertinency to our question.

Our next speaker is Dr. Joseph Kopas, who is president of the Human Engineering Institute and a training consultant for Republic Steel Corporation. He has been with Republic Steel since 1947 and has done much training there, both of a technical and managerial, operating and maintenance type.

His Human Engineering Institute is a non-profit organization which develops and conducts programs to meet the needs of industry in training and upgrading management personnel, operators, and maintenace employees. He has some 50 companies participating in training programs developed under his direction at the Human Engineering Institute.

A very interesting sidelight on Dr. Kopas is that he was born and raised on a farm in Belmont County, Ohio, and his first experience with training others came when he taught his father to take over his pipethreader job so he could go to college. He went to college and got his B.A. and M.A. at Western Reserve and his Ph.D. from Ohio State University. He has been a consultant to the War Manpower Commission; he has been a developer of an industrial test battery which is widely used. He is going to talk to us on "Upgrading for Heavy Industry." Dr. Kopas.

DR. KOPAS: Thank you.

Dramatic technological advances during the past decade have brought about rapid and extensive modernization of equipment, facilities and processes in industry. Industrial concerns of all sizes have had no alternative but to modernize if they were to remain competitive. Moreover, there appears to be no end to the urgent need to modernize as the already fast pace of technological development continues to accelerate.

We must emphasize, however, that technological progress not only makes equipment, processes, and facilities obsolete, but also makes employees obsolete. Just as in the case of older equipment, the older employees are hit the hardest and quickest by the probability of obsolescence. Obsolete equipment can be scrapped and replaced with new and modern equipment, but "obsolete" manpower cannot be scrapped except possibly in small number. Furthermore, modern equipment cannot be managed, operated and maintained by "obsolete" supervisory, operating and maintenance employees.

From a sheer logical viewpoint, it stands to reason that in order to operate, manage and supervise these modern facilities and processes, industry is going to need technically skilled personnel.

And most of these technically skilled people are going to have to come from the ranks of those already employed by industry--I would say 85 per cent of them--which means pretty much an updating and upgrading training program. And the most practical, the most economical method--and the most effective--we have found in ten years of experimental and developmental work has been on-the-job training.

Allow me to illustrate the nature of the older worker's problem--a major problem for our entire industrial community. We can "profile" the older worker.

(a) His average age is 45.

(b) His education stopped somewhere about the ninth grade.

(c) He has 25 years of seniority.

(d) He has 28 years of work experience.

(e) He has been out of school for 31 years.

This worker may be a supervisor; he may be an operator; he may be a maintenance man. These three categories constitute about 80 per cent of our industrial personnel.

He holds a key job at the top of his job progression.

He has attained the highest degree of job success, job effectiveness, earning power and job security.

In a sense he is sitting on top of the job world at 45, looking forward to 20 more years of employment.

His employer views him as one of his key men, and looks forward to 20 years, at least, of service from him.

And for many years, up until 1955, this was a system that worked beautifully in industry. Then along comes a rapid wave of technological progress, and let's see what happens:

Our man, formerly at the top of the job world, is now the prime victim of technological progress he didn't ask for, which he didn't particularly want, and over which he has no control.

He is the first to be affected, because he is at the top in the job progression. And this also results in a most interesting parallel: just as the oldest equipment is more likely to become obsolete under the modernization program, so are the skills of the older worker, and he is in an unfavorable position to help himself. He finds himself in an inescapable and desperate race between forced obsolescence and forced retirement. And to compound his problem, he finds that his competitors in this race are young men who are better educated, better qualified and receiving preferential treatment.

As a consequence, the older worker seeks assistance from his employer, from his union, and from his government. Updating and upgrading training constitute his only hope for the future. And if that fails him, he is done for, and he knows it. Because in the area of technical work, you either know what you are doing, or you are out of the game. If he does lose out--and some have been losing out steadily--where, at the age of 45, is he going to find an opportunity for training that will provide him with the necessary skills for a new occupation of equal status? And, if he should get that necessary training, who is going to hire him at that age?

These are some of the problems the older worker faces.

He needs training now, not after he is unemployed and on relief. That is why updating and upgrading are of such vital importance. It is usually too late and too difficult to retrain him after he is out of work and on relief. This basically is the story of the older worker.

That we hear so much about "disadvantaged youth" is rather interesting. We are continually told that a good percentage of our young people lack basic education and skills necessary to hold jobs in our highly mechanized industry. But if you want to talk about the disadvantaged people, the adult is in a far more precarious position than the so-called "disadvantaged youth," since he is far more lacking in basic education, and he has been out of school for those 31 years we mentioned.

Unquestionably there is a great need for basic training, and we require the finest type of job training. And this is why I have long mentioned that our present on-the-job training is wholly inadequate for this monumental task.

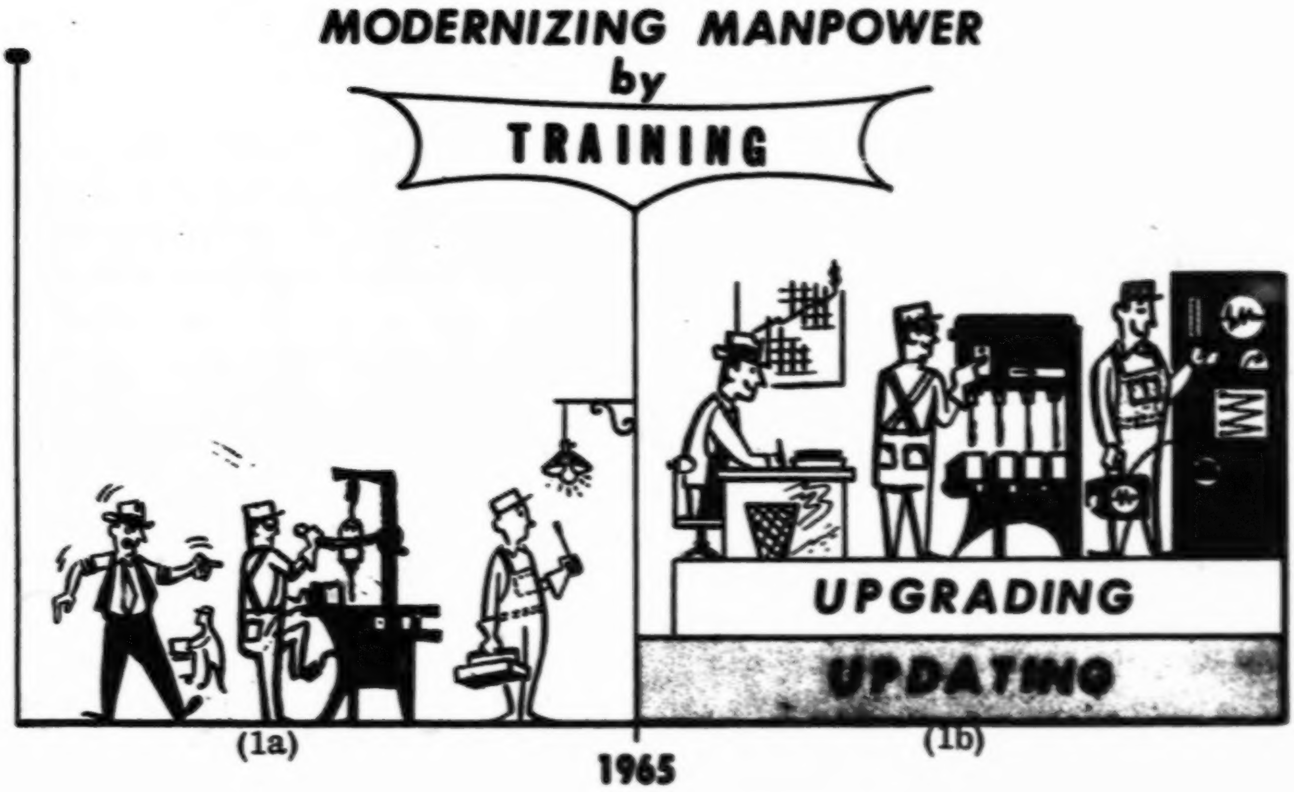
MODERNIZING MANPOWER
by
TRAINING
UPGRADING
UPDATING
(1a)
1965
(1b)

PHOTO 1

Here is an artist's conception of (1) the supervisor (2) the operator and (3) the maintenance man with the screwdriver -- the three basic jobs in industry which occupy approximately 80 per cent of industrial personnel. These workers still form the working corps of industry, but they must all be updated.

As we can see from the illustration the piece of equipment (shown in 1a), manually operated, was replaced with equipment operated by a push-button (shown in 1b). A significant change in skills results when a worker moves over to the more sophisticated piece of machinery. Its starting box, the motor, and everything else about the machine in 1a was simple. The screwdriver electrician, who was good at his job, could maintain it easily. In fact, the operator himself often replaced the fuse with a penny to keep it going. Both he and the maintenance man were ingenious at keeping it running.

Let's consider the maintenance man. His situation is typical in our changing society. Picture him now handling the maintenance work on a modern piece of electronic control equipment. Now he must know how to use an oscilloscope if he is to be effective. It takes this type of device to make the push button work on modern equipment.

Of course, it may be possible to use a shot-gun type of program taking two years, six months, or three months to make an electronic maintenance man out of this electrical maintenance man. However, it is my considered opinion that the shot-gun approach has glaring deficiencies. It is going to take a thorough-going job training program to take the old-style supervisor, operator and maintenance man and place them in the new automated job situations. A tremendous amount of upgrading and updating is absolutely necessary.

Up to 1955--which we have chosen as the approximate date when automation became a major factor in industry--the majority of skills were largely manual. Manual skills could often be learned empirically. But in each succeeding year technical knowledge skills have become more and more important.

We are literally in the era of "head skills." Recently a worker told me: "I don't have to sledge and wedge and dig any more on my job, but I do have to use my head more."

Now, head skills aren't learned empirically. They can be mastered only by study and by top flight instruction. The instructors must know the job and the changes the job undergoes. Most jobs are in a state of flux.

The training program not only has to help workers catch up with their jobs, but it must be organized on a permanent basis so that workers can stay with their jobs. And it must be designed to fill in the gaps in basic education, because it takes basic education to master the new skills.

This is the new "job skill mix" that we are emphasizing. Our basic premise is that on-the-job training is still the most practical, effective and economical way of updating and upgrading employees. But we are going to have a considerable task on our hands in updating and upgrading our job training program.

The conditions under which the training has to take place have been overlooked in large part by persons directly concerned with doing something in this field.

Industry has horizontal unions, not vertical. The apprenticeship programs work best in the vertical unions, for example, the construction unions. The horizontal unions, particularly the CIO, draw their members from a wide range of jobs, and job progression has been the basic means of training. Generally what happens is that a new worker comes in at the bottom of the job progression ladder. He bids on some of the beginning skill jobs. In a few cases, apprenticeship is the route into these beginning skill jobs, but in most instances the way is through the learner and trainee program.

The beginners acquire elementary skills. Then they move up to the intermediate skills as a result of experience, further job training, etc. Then they progress into the advanced skill--and finally enter into supervisory and staff positions.

Modern technological progress has upset this system in many ways, but it is still the best way to do the job, if we can adapt to the new conditions.

What, exactly, has the technological revolution done to the old system.

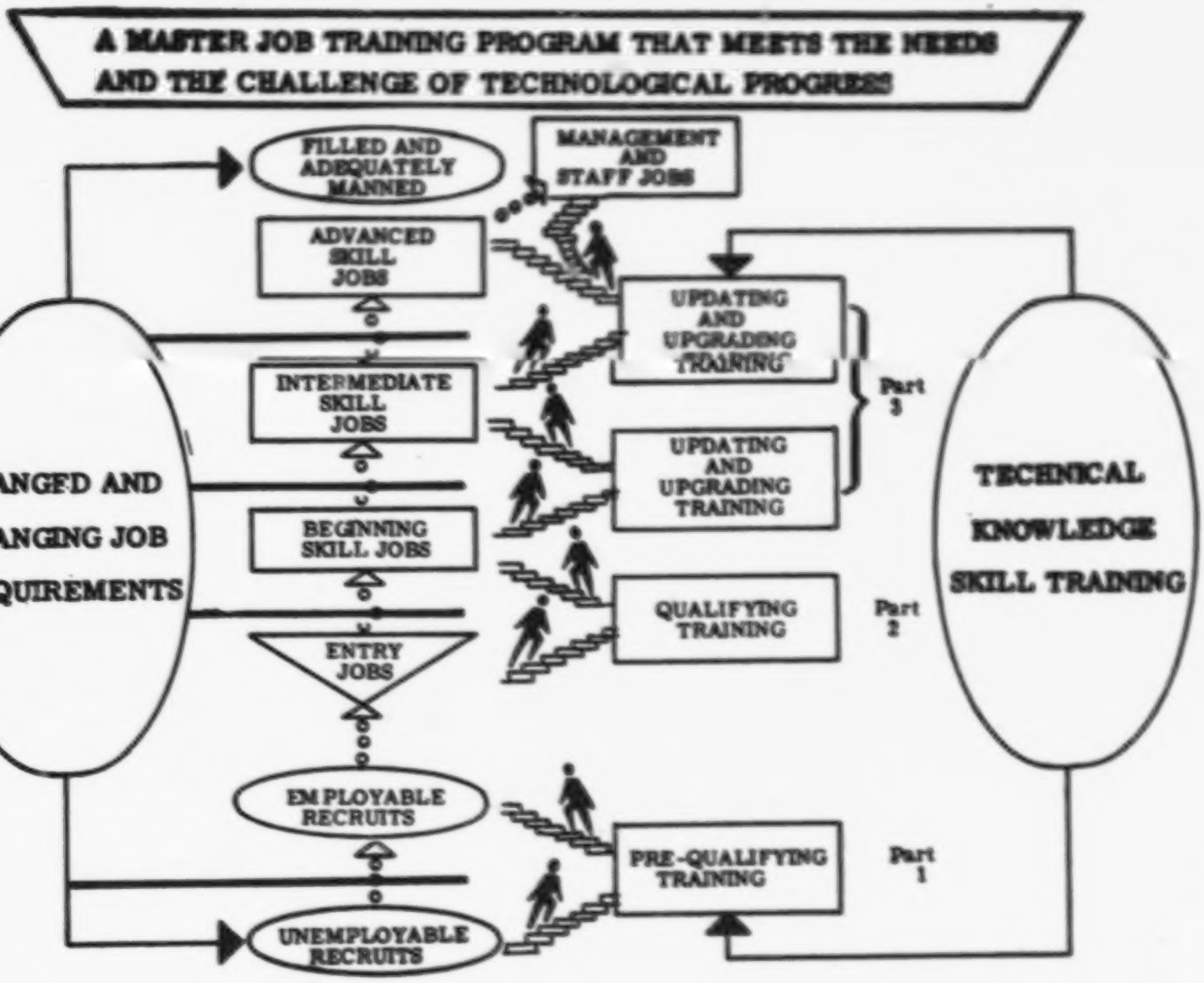
A MASTER JOB TRAINING PROGRAM THAT MEETS THE NEEDS AND THE CHALLENGE OF TECHNOLOGICAL PROGRESS
FILLED AND ADEQUATELY MANNED
MANAGEMENT AND STAFF JOBS
ADVANCED SKILL JOBS
UPDATING AND UPGRADING TRAINING
INTERMEDIATE SKILL JOBS
Part 3
UPDATING AND UPGRADING TRAINING
CHANGED AND CHANGING JOB REQUIREMENTS
TECHNICAL KNOWLEDGE SKILL TRAINING
BEGINNING SKILL JOBS
QUALIFYING TRAINING
Part 2
ENTRY JOBS
EMPLOYABLE RECRUITS
PRE-QUALIFYING TRAINING
Part 1
UNEMPLOYABLE RECRUITS

PHOTO 2

First, it has blocked the normal progression line. With the new changing skill requirements, if a person can't qualify for the beginning skill jobs, then he clogs up the job progression line. And if the person in the beginning skill jobs doesn't catch up or keep up with the changes, he clogs the line into intermediate and into advanced job skills.

So our problem with on-the-job training--and I think it is still the most effective way of dealing with the problem--is to find some way to unclog and get the job progression line moving.

Before ultra-modern technology came into the picture there was almost no such thing as "unemployable recruits". And there were no unfilled or inadequately filled jobs. Job progression took care of the need for skilled personnel. When there was a greater need at certain times, the job progression ladder moved more rapidly. When fewer skilled workers were required, the progression scale just worked that much slower. When there were too many people, the progression worked in reverse because of job rights, seniority and everything else tied into those factors.

Now, we feel that the job progression line can be unclogged and can function smoothly again through an updating and upgrading program to help older workers qualify for skills the new technology has inaugurated.

To bypass the obstacles at the bottom of the progression line, we need pre-qualifying training--to take the now unemployable recruit, make him employable and get him into the entry jobs.

However, this by itself is not enough because all he will do is clog up the works as he gets into the entry jobs; and, he will not even get into the entry jobs until the workers there can move up into the intermediate skills. So training of the entry skills group to move ahead is the second part of the program.

The third part is to move workers with intermediate skills into the advanced skills and so fill the highly-skilled jobs that today are going begging by the many thousands. In Cleveland, as an example, the only pool we can draw from are the unemployable unemployed recruits--down to 2 1/2 per cent of the work force--or the workers who are underplaced.

This type of program is necessary, to get the job progression line going, get it unclogged and get workers fed in at the bottom.

From reasons of seniority, those with intermediate skills must get the first opportunity for advancement. Any other program is not going to get the cooperation of the unions--and it shouldn't.

But as the intermediate skilled workers move up, the entry job workers must also move up, and the employable recruits have to move up also. In other words, the job progression scale must be moving at all times!

So we need a job training program that will act as a job trainee escalator--taking the "technical illiterate," and within his working lifetime--and under seniority conditions--making um a skilled maintenance man, or operator, or supervisor.

The newest thing that we have been able to work out is what we call a "Ten-Hour Job nstruction Curriculum Module."

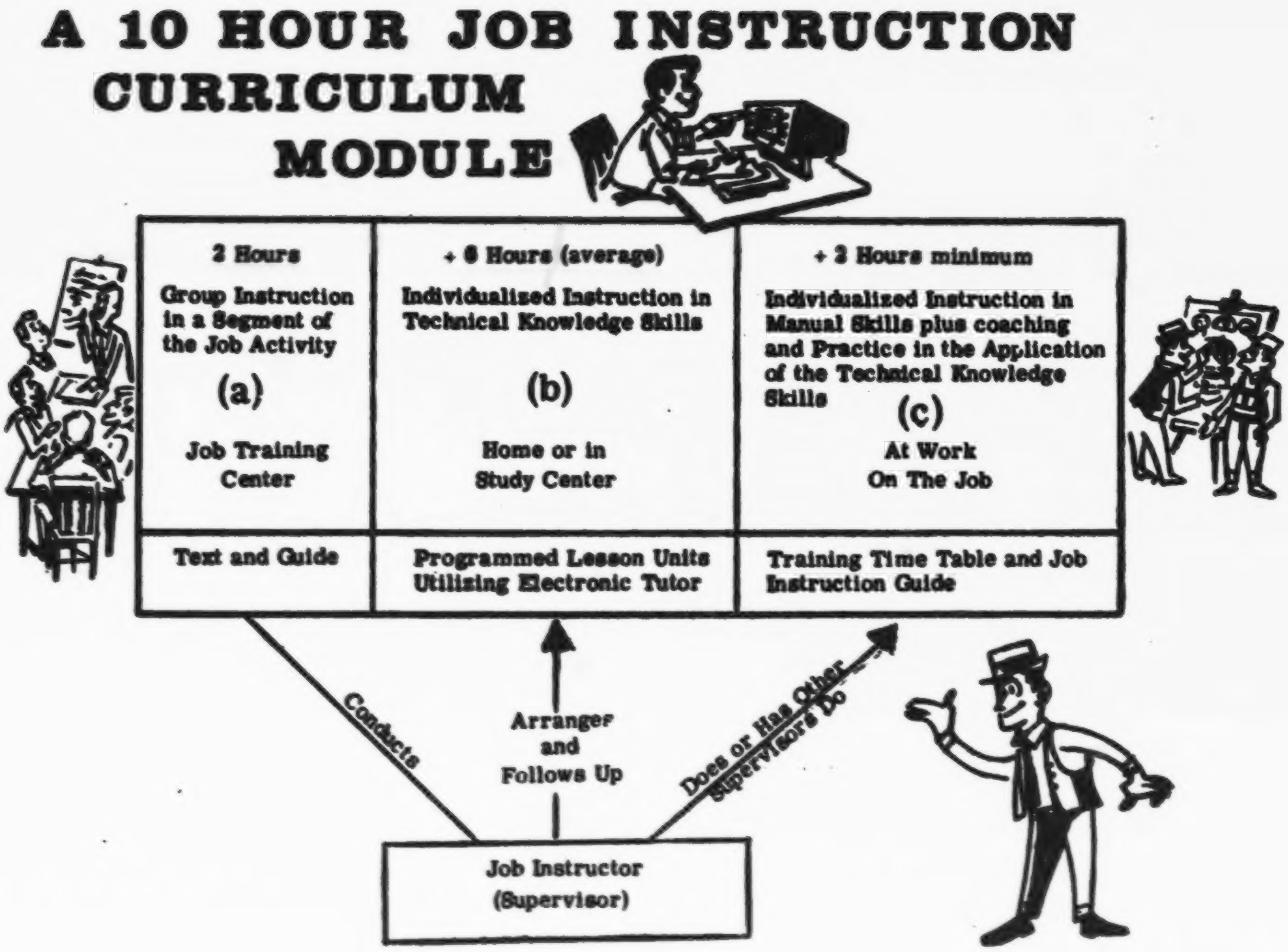
A 10 HOUR JOB INSTRUCTION CURRICULUM MODULE
2 Hours
Group Instruction in a Segment of the Job Activity
(a)
Job Training Center
+ 6 Hours (average)
Individualized Instruction in Technical Knowledge Skills
(b)
Home or in Study Center
+ 2 Hours minimum
Individualized Instruction in Manual Skills plus coaching and Practice in the Application of the Technical Knowledge Skills
(c)
At Work On The Job
Text and Guide
Programmed Lesson Units Utilizing Electronic Tutor
Training Time Table and Job Instruction Guide
Conducts
Arranges and Follows Up
Does or Has Other Supervisors Do
Job Instructor (Supervisor)

PHOTO 3

Job training has always been handled by supervisors. It should be handled that way in he future. The coaching of workers in the jobs has also been handled in great degree by senior mployees; and that will continue. However, the success of training in the future will be determined to a large extent by the skill of the instructors so their training, too, has to be provided or.

The major problem in the training of the older workers, lies in the individualized instruction area. A speaker this morning indicated how heterogeneous the group of older workers s. Everything you can think of in education and individual differences is here in a broad spectrum: age, experience, seniority, aptitudes for technical training, basic education, and so on. And you can't select your trainees. The senior employee must have the first opportunity, or simultaneous opportunity, if we are going to do the job successfully.

The ten-hour curriculum plan has made a significant difference in the job training we are now conducting in conjunction with a number of industrial firms. Group and individualized instruction are combined. We didn't have the individualized instruction before. Most on-job-training programs don't have it. But it is sorely required if we are going to make provision for the individual differences of workers.

Therefore, we worked out a ten-hour job instruction curriculum. It constitutes, of course, only a part of the total job training. We have been breaking up the total job into 120 curriculum units, doing exactly as our earlier speaker said: working with the supervisors, the technical staff, the department heads, and various other personnel, so as to identify the job training required. That is the course. The math, the chemistry, the physics, combustion, principles of metallurgy, are all woven into the job training. The workers study the jobs they are actually working on and the technological changes that are occurring in those jobs.

In the two hours of group instruction, the workers discuss one segment of that job activity, in logical sequence. They identify the problems they are having on the job. They utilize prints, service manuals, and everything else that is tied in with the work. They identify the technical knowledge that would help them do a better job, the new skills which are so necessary because of the technological changes occurring in their jobs.

Then come six-hours of visualized instruction, programmed and designed to utilize the electronic tutor. This equipment is loaned to the worker for use in his own home. This makes it possible for the worker to master the "technical know-how" he has already identified as necessary in his job.

The visualized instruction program is tied to two hours of on-the-job coaching. In this way, the worker gains proficiency in the application of his newly acquired technical knowledge. Acquisition of knowledge is not enough in job training. Application is the key.

Thus with ten hours of individualized and group instruction--at a minimum--it is possible for a person who is working full time to take a major step--voluntarily and largely on his own time--upgrading his job skills.

To accomplish this objective, you have to develop a text for the instructor who is the supervisor of these workers; you have to program lesson units for the electronic tutor; and you have to devise a training time table and job instruction guide for the on-the-job trainee and coach.

This ten-hour job instruction curriculum module is probably the most promising single advance in our ten years of developing job training programs. And there are tremendous possibilities that haven't been tapped yet. When you take group instruction and individualized instruction and tie them very specifically to the needs of the job and what the worker wants and needs, you have a combination that is going to make a tremendous difference in our whole approach to job training.

We are making progress--progress that would not have been possible if it weren't for people like Mr. Crum and others.

I was asked to make recommendations, and here is what I recommend.

In respect to industrial training, we must provide for all workers, from the youngest to the oldest. We propose a new On-the-Job Training program that consists of four basic parts.

Number one, the development of a job-oriented, job-directed, and job-applied course--a curriculum such as the one we are talking about: group and individualized instruction; utilization of teaching aids and learning aids that are appropriate to the job.

Number two, provision of training for our job instructors, job coaches and the administrators of the training program. We can no longer operate on a hit or miss basis.

Number three, designation of job training centers equipped with proper training and learning aids. The idea of just looking for a room that might be available in a local high school at a time when it is available just doesn't fit the picture any more--or looking for an instructor who might generally qualify, and so on. The job is too big, too complex and too important for that kind of loose operation.

Number four, simultaneous undertaking of all three parts of the program. Otherwise we will have difficulty in making the job progression work as it has to work if we are to have the highly technically skilled supervisory, operating and maintenance personnel we need to operate our modern industry. Is the need real? All you have to do is look at the newspaper ads.

Can a program of this kind work? Can we make technicians out of older people? We have had just a little experience, because it does take time, money, effort and the cooperation of a great many people--the government, the unions, management and educators.

But at Human Engineering Institute, a man 67 years of age finished a training program with us. For four years on his own time, and through his own sweat, literally, he took courses in electrical maintenance, mechanical maintenance and basic metallurgy. Today, in the field of electrical maintenance, he can hold his own with any younger worker.

Now in conclusion, I would like to indicate strongly that we are going to have to make better use of technology to help us in job training. The electronic tutor is an example--automation itself, talking.

We should remember that people can utilize technology to gain rather than lose.

Thank you.

MR. WILLIAMS: Stay right there, so you can answer questions.

MR. WOODS: I am beginning to feel a little bit like Don Quixote. There is a line in the story -- I don't recall just the incident -- but it runs something like this: "Having vanquished the foe, he mounted his horse and rode off in all directions."

I am beginning to feel that this is what is happening to us here.

Dr. Kopas has stated that the present OJT approach is all wrong --

DR. KOPAS: No; inadequate. That is a better way of saying it.

MR. WOODS: And that the proposal that he has made here is what is necessary if we are to lick this problem of retraining the older worker.

I would like to come back to this definition. It certainly is not clear in my mind right now -- and I am working with this every day -- as to just what the people here mean when they say, "On-the-Job" and "institutional."

I gather from what Dr. Kopas and Mr. Riley said this morning, they mean the retraining takes place while a person is working, but not necessarily on the job.

Now, to me, On-the-Job Training means that a portion of your six, seven, or eight-hour workday is set aside for specific training. But from what Mr. Riley said this morning, and from what Dr. Kopas has alluded to here, a lot of this upgrading training for the older worker takes place in the evening, voluntarily; it is not part of his workday, and for the most part it takes place in an institution.

Frankly, at this point, I am thoroughly confused.

DR. KOPAS: Let me clarify this a little bit. I will tell you where part of our confusion occurs.

We have always pretty much in past job training concentrated on manual skills. That could be done best right on the job, doing what the job requires, and being shown how to do it, using job breakdowns, and so on.

Now, for some reason or another, the idea in the past was that you could cut the job training in two parts, the head work would be done in one part and the manual part in the other. That doesn't fit the modern job training picture.

First of all, institutional training has been pretty much course-oriented, academically oriented. Sure it has been adjusted and tinkered with. But I am not speaking about an adjusted academic program. I am talking about a new phase of job training--training while the person is employed, a job-oriented program. So he learns technical theory in the evening that helps him do his job better the next day. You can't do that part of the training on-the-job. It is simply not practical. There may be a great deal of noise in the plant. Concentration is required. Mastery of head skills just can't be done on the job.

But it still is job training. It is not just related training. It is a very integral part of his job. That is new and modern job training in my estimation. Does that clarify it to some extent?

MR. WOODS: I am afraid not.

DR. KOPAS: Ask some more questions.

MR. WILLIAMS: Well, before you get into this, I am just terribly afraid that what we are getting into is what might be a very legitimate discussion at some other time, as to the relative merits of training a person while he is employed against training a person while he is unemployed and doesn't have any immediate job opening, and also the relative merits of training him in a classroom versus the relative merits of training him while he is actually fiddling with a machine.

Are there any further questions, however, of Dr. Kopas on his presentation -- things you didn't understand or would like him to amplify a bit, or anything like that?

MISS HAMER: This ten-hour thing--how long does that go on? I mean I see that part of this is his actual working time, but I am not sure. Is there a time limit to this? Or is this something that goes on every day of the week?

DR. KOPAS: We are operating a four-year program, a 1,200-hour course, 30 weeks each year. But it can be worked up in any combination of ways, because it is very flexible.

MR. WILLIAMS: Dr. Kopas, I want to thank you on behalf of everybody here for a very penetrating and very stimulating presentation. I think we are all greatly in your debt.

And now we want to turn to another very important and very fascinating subject which is going to be presented by Dr. Carl Eisdorfer, who is Associate Professor of Medical Psychology at Duke University and a lecturer in the psychology department. He is Director of Training and Research Coordinator of the Duke University Center for the Study of Aging and Human Development.

He is going to present "A Tentative Theory on the Psycho-Physiologic Aspects of Adult Learning."

Dr. Eisdorfer.

DR. EISDORFER: Only in recent years have we begun to systematically and dispassionately examine learning in the aged.

Aged persons in fact do not learn as well as do the young. Explanations for this finding are as widespread as are the constructs used to explain the basis for aging itself. In this regard it has been suggested that cell drop-out may be implicated in the aging process and that a loss in the population of functional nerve cells may be the basis for diminished CNS functioning. Cumming and Henry, at the University of Chicago, offer the hypothesis that a disengagement process is associated with advancing age and that the older person is gradually withdrawing from his environment and, in consequence, is not sufficiently motivated to participate in many situations, thereby causing an apparent decline in function. Other researchers have suggested that there is an overload in the system based upon prior utilization of storage capacity.

Inglis, among others, has implicated the short-term memory storage bank as a responsible variable for learning deficit. According to Underwood, interfering associations may be intimately involved with the deficit in recall. Since the aged have far more associations than the young, inhibition in the form of interference from old associations might be expected to produce greater difficulties in recall in the aged. It has long been recognized that perceptual deficits are greater in the aged than in the young. This factor, too, relates to learning insofar as it might be expected to result in faulty registration of stimulus material by older individuals and subsequent impaired retention.

The theoretical model which I would like to discuss here involves yet another approach to the problem. It is based upon a number of studies of verbal learning in the adult male in the middle and later years of life, which have been performed in the laboratories at Duke University. Like all hypothetical models, it is a set of ideas which fit the facts obtained from our experiments and are useful as guidelines for further investigative work. Although still a tentative theory, it does have implications for adult learning and, more particularly, for the older individual in the retraining situation. I have been asked to share these speculations with you to give you a view of how we developed these notions and to make suggestions for practical applications wherever it seems possible.

In earlier studies of perception in older persons we had found essentially what others before us had discovered, namely, that, when a given sensory input--a light or a sound--reached the appropriate sense organ of an old or a young person, the older person behaved as if the stimulus were less intense, that is to say, it was weaker for the older person. Thus the aged individual needs more light to see, a louder noise to hear, and so on. It should have followed that the effects of the stimulation would fade more rapidly in the aged individual and yet we found the opposite to be the case. Following stimulation, the older person needed more time before he was prepared to receive new information. It was this background that led us to study the effect of timing on learning in the aged. In a number of studies we have compared young males, aged 20 to 49 years (mean 37.3 years), to aged men, 60 to 80 years (mean age 66.5 years), on their ability to learn a list of 8 words. All subjects had been given a part of the Wechsler Adult Intelligence Scale (Vocabulary Sub-test) and those with extremes of ability (high or low) were excluded from these studies. Material to be mastered was lists composed of eight 5-letter disyllabic words. Each of the words was highly familiar, as rated by several word counts, and each had a high association value to other sources. The words were pupil, river, today, jewel, metal, honey, woman, and dozen. The words were randomly assigned to form a different list for each individual and presented to him by means of a slide projector. The letters measured 2.2 inches in height at 6 feet from the seated subject, and were easily read by all; timing was controlled electronically. Subjects were shown the words one at a time and encouraged to respond, including guessing if necessary, by predicting the next word to appear. After the exposure of a list of words was completed there was a 40-second rest period and then the asterisk signalling the first word appeared. In summary, then, the men had to learn the order in which the list of familiar words was arranged. They were given a maximum of 15 trials to complete this task.

In our first study, the words were flashed on a screen for 4 seconds for one group of men, 6 seconds for another group, and 10 seconds for a third group. The same conditions were used for old and young, thus giving us a total of 6 sub-groups.

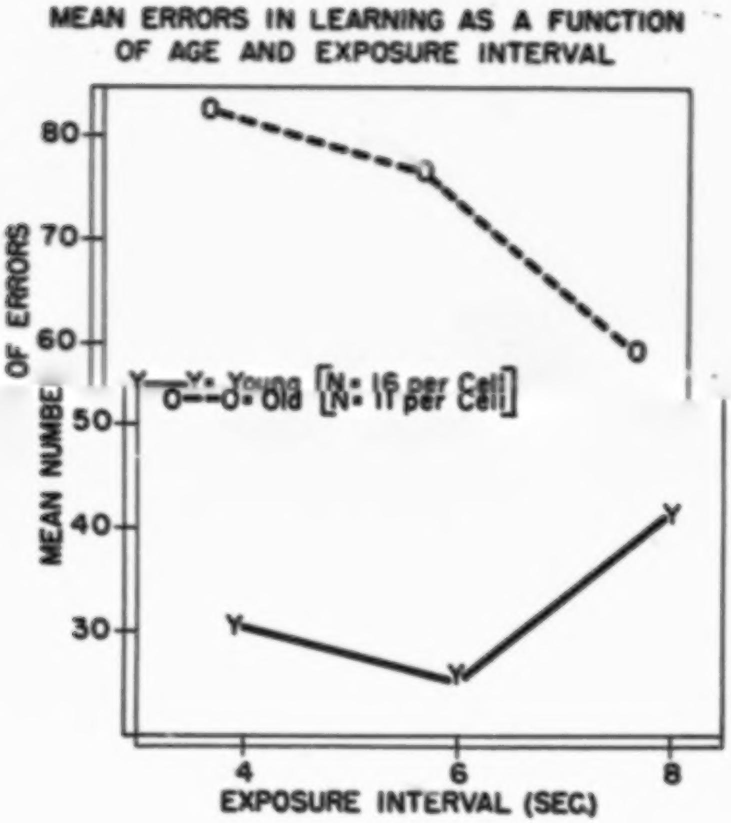
MEAN ERRORS IN LEARNING AS A FUNCTION
OF AGE AND EXPOSURE INTERVAL
MEAN NUMBE
OF ERRORS
80
70
60
50
40
30
O
Y
Y—Y: Young [N: 16 per Cell]
O--O: Old [N: 11 per Cell]
4
6
8
EXPOSURE INTERVAL (SEC.)

CHART I

Chart I shows that for the time dimensions used in this study, the old profited much more from the longer exposures than did the young. Statistical analysis showed a significant reduction in errors on the part of our older men as exposure time was advanced from 4 to 8 seconds; this was not true for the young who showed no improvement with more time beyond 4 seconds. In a subsequent study of 10, 12, and 14 seconds of exposure of the words the older group continued to improve through the 10 second period, but not beyond.

To explain these results, we examined the types of errors made more closely. It is possible to make two kinds of errors -- like sin, they may be classified as errors of commission and omission -- one can do the wrong thing or do nothing at all.

ERRORS OF OMISSION AND COMMISSION IN RELATION TO AGE AND EXPOSURE INTERVALS

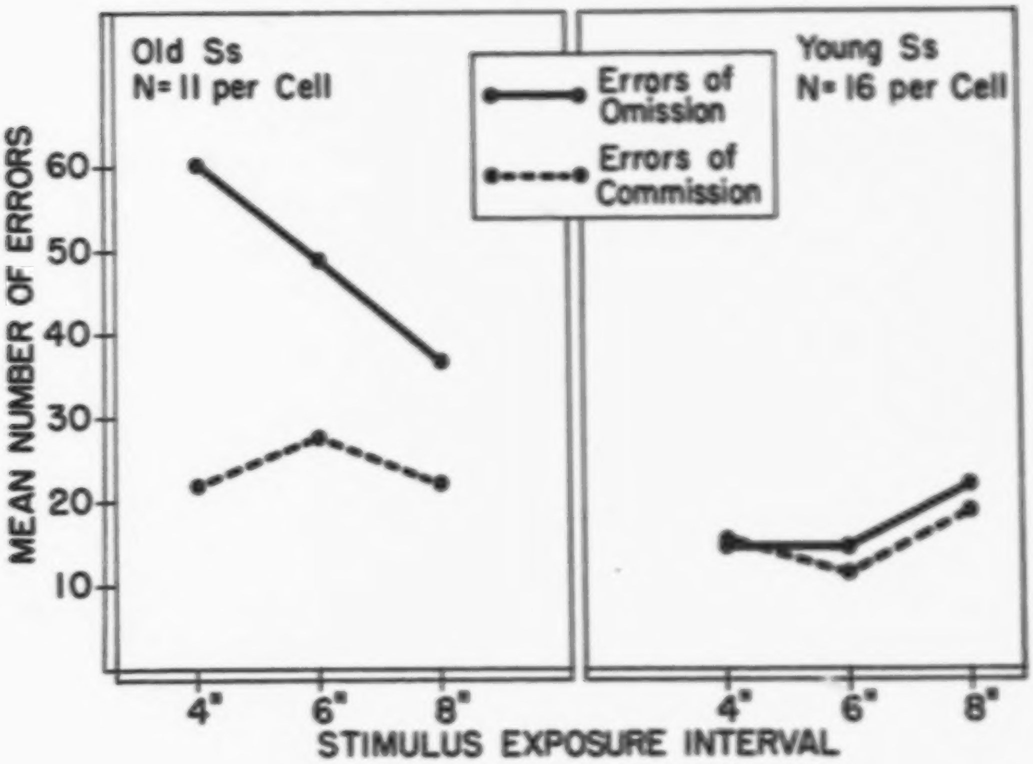

CHART II

Chart II shows the errors analyzed into the sub-divisions of omission and commission. While the number of omission and commission errors is virtually the same across time for the younger groups, this is not the case for our older men. Commission errors do not seem to vary with increasing time, but omission errors of old subjects do decrease significantly. As a matter of fact, it is almost as if the improvement found in the older subjects with increasing time was primarily a function of the reduction in errors of omission. To put this differently, the improvement found in older men with increasing time is related to an increased response rate on the part of these subjects as the pace of learning slows down.

In other experiments, we eliminated the possibility that the improvement with time was based merely on the added opportunity to view the words the subject was to learn. We then examined the theory that the older person might be learning under relatively rapid conditions, but be unable to produce his response in time to avoid interference from the next word in the sequence.

To give you a simple analogy, let us take the not unfamiliar situation at a cocktail party where a chatty friend or, more typically, his wife corners me, rattles on and on, tossing out one question after another, never allowing me enough time to answer. After several minutes with this special kind of individual, I usually find the excuse to freshen my drink. I have always suspected, however, that, later that night, at home, she comments to her husband, "That guy is really pretty stupid--I asked him loads of questions and he never gave me one answer." This ancedote also illustrates one other aspect of a theoretical point of some significance to the scientist studying learning, that is, the distinction between learning and performance. We have all had the experience of a "bad day," during which we are unable to recall well-known facts or forget to do something important. Many of us may recall our school days during which we studied and mastered the material prior to the examination, then the next day, because of anxiety, indigestion, or that frightening look on a teacher's face, we were unable to answer even the simplest questions. Immediately after the exam, when the tension was over, the answers became readily available. We may have learned, but we were unable to perform.

I would like to suggest, on the basis of our experimental work, that the learning deficit seen in older persons is, to a large extent, not a true deficit of learning but rather one of performance. To support this point I would like to discuss with you one other experiment, without going into too much detail. In this study, we examined the hypothesis that older subjects did not have enough time to produce their response following the exposure of a stimulus word. For this purpose the words to be learned were on the screen for 4 seconds, but an additional 7 seconds were allotted before the next word arrived. Our aged men did as well as they had done under the 10 second exposure condition described earlier and their total responsivity was also at that same high level. This study, however, included a monitoring system so that we could time the responses. The mean response time of our older subjects was approximately 5 seconds before learning the correct position of the word and 3.51 seconds following correct positioning of a word. This demonstrates that the older subjects are capable of responding within the time period available during the most rapidly paced situation.

It is also clear that, when the pace of learning is most rapid, the older person does not respond. We were correct, then, in attributing poorer learning under moderately rapid pacing to a tendency on the part of older men to withhold responses, but were wrong in assuming that he was unable to respond.

Now we are in a position to discuss the physiologic aspect of this psycho-physiologic story. On the basis of a fairly large number of studies at Duke and elsewhere it has been demonstrated that the free fatty acid component of the plasma (blood plasma, that is) is remarkably sensitive to the emotional arousal of the individual. Since fat is released into the blood stream in this form by adrenalin and nor-adrenalin, the hormones most intimately related to stress, free fatty acid is an excellent index of such stress. Through the use of a special needle with a flexible shaft, placed in a vein under local anesthesia, it is possible to take sequential samples of blood from a subject before, during and after the learning situation, and to examine the blood for its FFA content. We did exactly that. In the first of these studies we used 48 men from the Duke University hospitals, 24 young who had a mean age of 38 and 24 old with a mean age of 71.4. The learning task for these subjects was the same as that described earlier but 30 minutes before learning the needle was introduced into a forearm vein under local anesthesia, with the arm hidden from the subject's view behind a screen. Disc electrodes (2) were pasted onto his chest for simultaneous electro-cardiography and a rubber tube buckled around his abdomen to study respiration. At 30, 15, and 0 minutes before learning, during the 5th, 10th, and 15th learning trial, and at 15-minute intervals for the hour following learning, blood samples were drawn. I should emphasize that this was a completely painless procedure.

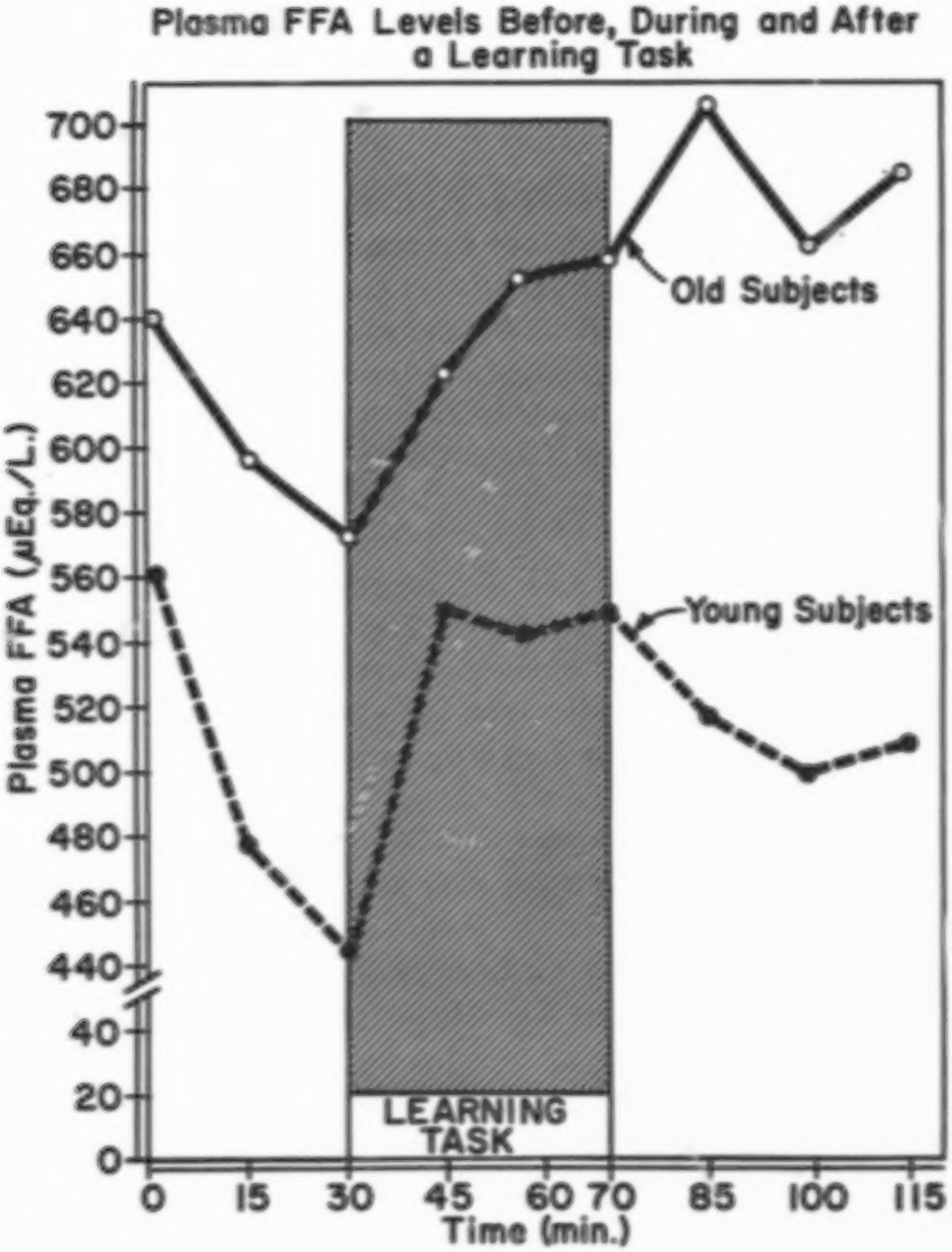
Plasma FFA Levels Before, During and After a Learning Task
Plasma FFA (µEq./L.)
700
680
660
640
620
600
580
560
540
520
500
480
460
440
40
20
0
0
15
30
45
60 70
85
100
115
Time (min.)
LEARNING TASK
Old Subjects
Young Subjects

CHART III

Chart III shows what happens to the level of free fatty acid in the blood. As you can see there is a marked difference in the level and pattern of FFA during and following the learning. Both old and young subjects show a decline during the 30-minute resting period before learning begins and both show an immediate response to the learning situation. Young subjects show a more accelerated rise and appear to show peak levels by the end of the 5th learning trial. The levels remain heightened during learning but begin to return to normal with the close of the learning situation. In contrast, older persons did not reach their peak elevation until 15 minutes after learning terminated and their levels remained high throughout the resting period.

We would have to conclude from these observations that contrary to the notion that older persons are not motivated by the laboratory learning situation, the opposite is in fact true. Older men are more aroused than are the young and they remain under stress for a longer period of time. This would also lead us to speculate that the tendency we observed for the older person to withhold his response might be somehow related to this heightened level of stress seen in the aged. To put it somewhat differently, the older person is made more anxious by having to learn and this anxiety and its physiologic correlates result in a tendency to withhold responses, with an apparent decline in verbal learning.

In the situation involving the physiologic measurement I have just described we noted that there was not much improvement with slower pacing. It became clear that the experimental situation itself was contributing to the anxiety level of our subjects. This might seem reasonable in retrospect but those of us involved in the study were too close to the situation to see this until the game was over and Monday morning came along.

We have done the learning study enough times so that there is little question in our mind concerning the stability of the improvement with slower pacing. This gave us an excellent opportunity to investigate the effect of reducing environmental stress and its consequences for learning in the aged. To do this we brought subjects to the laboratory on two successive days. Day 1 involved introducing the subject to the physiologic measuring devices exactly as described earlier but without having him learn. Instead we used a simple attention-holding task. On Day 2 we repeated the earlier study using a 4- or a 10-second pace. The results are quite conclusive. When we compare learning following this familiarization with the results of learning at the initial exposure to all of the apparatus, there is a significant improvement at the 10 second pace for those subjects with the two day experience. Remember the first day had nothing to do with learning -- it was merely a chance to gain firsthand acquaintance with the laboratory set-up. On a theoretical level, then, we demonstrated that situational variables interact with other sources of anxiety in the aged to produce an effect on learning and performance. Remember, too, that under the conditions of rapid pacing, no needle, adaptation to the needle and other equipment, or no adaptation to the physiologic measurement -- all resulted in the same level of poor performance with associated withholding of response.

Thus anxiety is generated not only by the conditions associated with learning but by the learning task itself. You may recall that our physiologic measurement showed heightened stress response by the aged and that this response tended to persist well after learning. It is almost as if the thermostat for stress in the elderly was impaired with a result that the aged individual takes longer to return to his resting level. This persistent heightened arousal could well make learning more difficult for the aging individual, causing a vicious spiral of increased stress and increased relative task complexity.

One other issue should be mentioned, that is the distinction between cognitive and stimulus-response units in learning. To simplify it, the Stimulus-Response (S-R) model is one which involves a series of steps based upon a cue and its associated response. In the situation we have described it would be as if Word 1 were the trigger for Word 2, Word 2 for Word 3, and so on. A cognitive model involves a more insightful approach and returning again to our situation, one could learn that a given word is first or last and so on without requiring any knowledge concerning the word before or after it -- that is, a form of what we would describe as getting the idea or the "Ah ha!" phenomenon.

In some work situations the S-R approach is not only reasonable but efficient -- in others, a cognitive orientation may be more desirable. It should be indicated, however, that some theorists have suggested that older persons learn by an exclusively S-R approach. With this background I would like to offer the following set of hypotheses concerning learning in the aged.

1. The aged in the learning situation is considerably more anxious than are the young.

2. States of heightened anxiety in the aged are associated with a tendency to withhold responses.

3. Physiologic arousal and anxiety are somewhat diminished by slowing the pace of learning. As arousal diminishes older persons produce more correct responses because of a reduction in response inhibition.

4. Under more slowly paced conditions older persons seem to be capable of utilizing a cognitive style of learning.

5. As the pace of learning increases with its accompanying heightened stress older persons tend to shift from a cognitive to an S-R style of learning.

6. This shift to a primarily S-R approach to learning is complicated by a tendency on the part of the aged to inhibit responses with increased anxiety.

7. Anxiety and response inhibition in the aged parallels a less efficient autonomic nervous system feedback process in the elderly. Thus older persons tend to be more susceptible to the physiologic effects of anxiety-producing stimuli and these effects last longer.

8. Under conditions of maximal arousal, older people may in fact disengage, that is, become uninvolved in the laboratory task. This will be modified by the ability of the older

person as reflected in his CNS status, his adaptation to the learning situation including previous experience in similar situations.

Let us speculate now on some practical implications. It would be preferable to have older workers perform at untimed, unpaced tasks than under heightened time pressure. Tasks requiring greater cognitive skills should include greater opportunity to respond following the introduction of each of the elements of the task. Rapidly-timed tasks should require simpler, more stereotyped responses. Retraining programs should be a routine aspect of work in order to minimize the stress of the learning situation for the older worker. It also follows from what we have said that anxiety on the job site should be minimized. The older person in the new situation is already burdened by a high level of stress and situational factors would probably only increase his discomfort.

Re-training programs might well include the use of self-controlled learning devices on the order of the teaching machine, for greater efficiency. This would also capitalize on the tendency of the aged individual to move to a stimulus-response style although we might expect some initial arousal upon his introduction to such equipment.

My final, and perhaps most important suggestion is that we all assume the responsibility for further inquiry into this problem. The aged citizen represents a highly significant asset to our economy, by a deeper understanding of the fundamentals of the aging process we should materially affect not only the happiness of this segment of our population but the nation as a whole.

(Applause.)

MR. WILLIAMS: Thank you very much, Dr. Eisdorfer. You didn't have to apologize. That was a very fascinating, stimulating, perceptive, and practical presentation.

Have we got some questions? We will just take a few and take a break for coffee, and then get back to work.

Yes, sir.

MR. LUER: Why must the top executive of a corporation be 60 to 80 years old but he demands people 21 years old with a degree and ten years of experience to do the work?

MR. WILLIAMS: That is because he doesn't suffer from as much anxiety as that 21-year-old.

I am sorry, Dr. Eisdorfer.

DR. EISDORFER: That is as good an answer as any.

I think there are several factors. To begin with, when we talk about the top level executive, we are describing a person who has had what I would call constant retraining. Typically, jobs that require a high level of cognitive skills require that you keep relearning.

I think the point that Dr. Kopas mentioned -- the middle-level individuals -- these are the people caught in technologic shifts. The executive doesn't worry about technology because he has to worry about administration. He wants somebody sitting on top of technology, so he looks for the younger man who has been trained in the newer technology and who, for five or six years, is sitting on top of the field. Then the younger man gets replaced because technology moves faster than retraining in some ways.

MR. LUER: Does your experiment show that the older one retains these things longer? That the younger ones have a tendency to discard things they don't think are important?

DR. EISDORFER: I don't think we really showed that, partly because we never looked at that. I think what we have to say is that the older person is more reluctant to make a response out loud -- and again this is not just a verbal response, because we have employed psycho-motor tasks, and the results are quite similar. The older man can press the button, maybe a little more slowly than the younger one but not much more, but as soon as we force him to make a decision about which button to press, his reaction time will slow up. So the older person, unless he has done a lot of decision making, tends to be more inhibited about making a public decision. We talk about the cautiousness of the older worker.

The younger person may go off half-cocked, but at least he goes, and sometimes, having gone, we can use that to educate him.

MR. WILLIAMS: Dr. Belbin, did you have any comment?

DR. BELBIN: I enjoyed the paper and was going to ask a factual question. You had eight words and presented these in various orders, and they had to put them in the right order?

DR. EISDORFER: No, it was a serial rote learning situation, so for a given subject they were always in the same order. And he would have 15 chances to learn the order, his particular order. No two subjects had the same order, of course.

DR. BELBIN: Fifteen chances to learn it. What time did you have between the presentations?

DR. EISDORFER: The study I showed you had four or six or eight, and we went on to 10 or 12 or 14 seconds of exposure, and there was an additional second in which the slides dropped over. The subject could respond at any time he saw a word, so he had in effect 5, 7, 9, 11, 13, or 15 seconds, depending on the particular condition. And they improved from 5 to 11 seconds but not beyond.

DR. BELBIN: I see.

MR. WILLIAMS: Dr. Carstenson.

DR. BLUE CARSTENSON (Director, Project Green Thumb, National Farmers Union, Washington, D.C.): Did the post-anxiety level for the older learner show any indications of how that might be useful in training and education? In other words, is there anything about that post-anxiety which would be conducive to further learning?

DR. EISDORFER: That is a very interesting comment. In some of our newer work, which is as yet unpublished, some interesting things have emerged. With shorter exposure periods, physiologic response returned to normal rapidly after learning, but subjects who learned under the longer intervals tended to have an ascending curve for physiologic anxiety. This may not be conscious by the way. The subjects felt a little upset but did not report a lot of anxiety. Their bodies did, but they didn't. This is a separate issue.

Subjects who had to learn under fairly rapid conditions seemed to return to a normal level more rapidly following the end of learning. And this is why we amended our notion so we now propose that when the stress gets very severe the older subject leaves the field psychologically.

Again, to make it a little more dramatic, I believe that at the fast paces the older subjects somehow stopped being involved, and so for them, once the stimulation was over, they cut out. There are some other theoretical explanations about this, one's feeling about work and the feeling about completion versus non-completion of a task. But it seems clear our older people in a fast situation didn't care about what they had done. It is analogous to the situation, I am afraid, of where some maintain that book learning is irrelevant, so they cut it out. I don't think they cut it out because it is irrelevant. They screen it and reject it because it is frightening, but defensively maintain it is irrelevant.

DR. KOPAS: There are a couple of things with respect to the group sessions that we came upon just empirically. One, that we were much more successful with the discussion technique and participation than with lecture and response testing.

The other, that instead of having the worker-students sit down in one big group -- we kept the groups down to 15, incidentally -- we had four tables and the tables were separate, so a person who was a slower responder than another was more or less limited to that smaller area. That seemed to produce better attendance, more participation, and better results.

MISS HAMER: This is group dynamics, isn't it? I want to get something clear. We are talking here about how to better train the older person. But there isn't any question, is there, that older people can learn? Isn't this the basis of adult education and hasn't it been proved over the years? Or is this still not a generally accepted notion?

MR. WILLIAMS: Our question is: Does vocational training pay and are special techniques needed? And I think probably this presentation is directed towards the kind of special techniques which would be needed.

Well, I got a lot of things from your presentation, Dr. Eisdorfer, but one thing I got was a title for a new protest movement and I can see the picket sign now, "Free Fatty Acids."

We are going to break for coffee and you only have 15 minutes. We will start again precisely at 3:15.

(Whereupon, a short recess was taken.)

MR. WILLIAMS: I think we will call the meeting to order and begin on the last segment of our session here today.

I am acutely aware of the fact that one of the tasks that Bill Jacoby has between now and 5:15 is to put together some very specific conclusions, findings as to what is going on, and some gaps, highlights and gaps, and come up with some recommendations.

So I think we are going to have to focus pretty specifically on our task, which is defined as finding out: Does it pay to train adults for vocational training, and are special techniques needed?

But before we can do that, it seems to me that there are two areas in which there is experience which lends itself to answers in this particular subject which we really haven't had a good exposition of today, not because we haven't had good expositions, but it just hasn't been on the agenda.

I know it is going to be very, very difficult to fill you in in five minutes apiece on these, but at least it will give us some realization of the extent of the field.

I am going to ask Dwight Crum, who is our resource person, to tell us a bit about what the institutional training under the supervision of Departments of Education throughout the country can teach us about the benefits of vocational training for adults, and the techniques.

DR. CRUM: Thank you.

After hearing the presentations, I know you must feel like I do, rather overwhelmed, and I would like to respond in a number of different ways. I would address myself to the Manpower Development and Training Program as just one avenue, perhaps, of training the older person.

I really appreciate Mr. Williams' approach that this is not an either/or proposition, one program versus another. I will try very hard not to keep saying things to build up the institutional training program versus some other.

I think the approach, though it may sound trite, is "the best possible training program for the individual." That is one of those lofty statements and I hope you won't let me get completely away with it, but there is no single training program that meets everyone's needs in every type of job situation. The thing that Dr. Kopas was explaining, we have worked with him on because it was another approach to job training. And he quite modestly didn't go into a rather large-scale program that we have in the State of Minnesota with the taconite industry, along the lines that he presented to you. We are not arguing or debating or discussing whether this is institutional or OJT. We are presenting it as another approach to meet training needs.

I think if you have an interest in something, regardless of whatever association you represent or your own background, you should study the laws that you are interested in, especially the Congressional reports. I am not talking here about the administrative reports, although I think they are very useful, but the Congressional reports of the House and the Senate Committees thathold hearings on the various Acts. They give the intent of Congress. And if you wonder why a certain Act isn't serving certain people or doing different things, read these reports. You can get them from your Congressional delegation.

At the hearings last February, one of the very questions raised here was raised: Why is Manpower not serving older workers? We have information that the Department of Labor and HEW now have task forces to redirect the entire program, in view of the lower national unemployment rate. This would be a good opportunity to make your views known to administrators of that program. In the Department of Labor it is primarily Stanley Ruttenberg, and in our Department it is Dr. Howard Matthews who was to be here, who is the Director of Manpower Training and Dr. Walter Arnold who heads our Division of Vocational and Technical Training.

One thing about the Manpower Training programs conducted by the public and private schools -- and a number of the programs are in private agencies -- is that considerable basic education and job orientation activities are being provided for these trainees. In addition, there are special counseling activities. The cost figures that are cited are for the total cost, including allowances the individual receives, and of course the allowance benefits were greatly increased.

The individual goes to school, if you want to use that word, up to 40 hours a week. He is in full-time skill training, including basic education. He is unemployed -- practically every trainee under the institutional program has been an unemployed worker.

I have visited a number of sites and this is what I would advise everyone to do. I know you are busy people, but if you want to know about something, get involved in it.

Don't base your judgments, whether good or bad, just on what it says in the newspaper or in some administrative report. These are helpful. And I am not just talking about visiting training programs, although I think that is important. But you have to get involved. Get involved by knowing what is going on and trying to assist the people to develop a better program, and give support at least to that phase of it that you think is good.

The Manpower program works, very briefly, this way: It is the responsibility of the State Employment Service to identify the need for training, to recruit, counsel and select the persons and refer them to the training institution.

Then it is the responsibility of the Vocational Education people, State and local, to provide the training. After training is completed, the Employment Service is responsible for job placement.

I stress that because you get into the question of what are the selection criteria. In response to one of the things that is said, a lot of the institutional training classes are not filled. The referral rates are not 100 per cent. So some people either aren't being recruited or, for some reason or other, do not desire to enter training.

We could talk a lot about that in view of some of the reports given here.

I have worked very closely with the Bureau of Apprenticeship Training, and one thing that distressed us a little bit was that the early OJT trainees under Manpower were not receiving related vocational education. Less than five per cent were receiving training in either public or in private training institutions to go with their job training. So we are working with them to have more and more of what we call coupled projects, so that the individual who is learning in an employer establishment will receive basic education if he needs it, and other vocational and technical training to go along with that.

I have a number of points here but in the interest of time I will just mention a couple of the things that might be of interest to you.

In some areas such as St. Petersburg and Tampa, Florida and others we could cite, Manpower Training Centers have been established in the city. They may rent a garage or other vacant building and put a big sign out, so everybody knows there is something going on, both those who might have interest in training and those who would be interested in the product. In those occupations such as auto mechanics that normally require a uniform, a uniform is furnished with "MDT Trainee" and "MDT Instructor" on it. These kinds of things help with visibility in the community.

As far as special techniques are concerned, they are desperately needed in the area of basic education. Too much of the basic education is "Dick and Mary ran up the hill." An older worker is not interested in that. He needs basic education that is occupationally oriented. We have some developmental work going on in that, but not enough, and there are all kinds of opportunities in the field of techniques.

Having said that, I will close. There are a number of things I would like to talk to you about, and each of these people made me feel a speech coming on, but I will refrain from it if I may.

(Applause.)

MR. WILLIAMS: Thank you, Dr. Crum. I don't know when I have been in a meeting that is so provocative and it is frustrating not to be able to pursue some of these things.

However, a very provocative lady sitting down there -- and I mean that only in the best sense -- is going to give us a report on the Title V program under the Poverty Act. We have learned a good deal about the subject of our meeting today from training carried on under that Title, and I think we would be remiss if we didn't hear something about these experiences.

This is Miss Helen Hamer of the Bureau of Family Services, Department of Health, Education, and Welfare.

MISS HAMER: The reason I brought this to Mr. Williams' attention is that under the Economic Opportunity Act, Title V is the only Title dealing with the training of adults. Title V is otherwise called the Work Experience Program. If you were really describing it, it would be called the "work experience and training program" because we have a very heavy component of training. We are dealing with the bottom of the barrel, the hard core unemployed persons who either have never had a job in their lives, or who have had such sporadic employment that they don't begin to know what it means to have good work habits, or else they have lost their jobs and been unemployed a good deal. They are the most highly disadvantaged people in the country. These are the people on the public assistance rolls. We service people on public assistance or people who have a potential for going on public assistance.

In the first year of our program we funded up to handle 88,000 individuals as Title V participants. Let me tell you what a Title V participant gets in our program. I was interested to learn from Dr. Ulrich that we are following a system; we just call it a comprehensive program. Here is how we arrived at it.

We looked at the needs of our people. First of all, they are very inadequately educated. So adult basic education is a requirement. If a client needs it, he must get it, and we mostly get it from Title II-B of the Economic Opportunity Act. We work closely with the U. S. Education Office.

Our people don't have marketable skills, so we make it our business to see that they get marketable skills. We do this in several ways. One way is to put them in what we call constructive work experience. We get public agencies to take these people on to do supplementary work. Our people may never be hired if they are going to replace a regular worker. These are extra jobs an agency wants to have done. We supply the manpower; they supply good supervision. In these work situations, our people learn good work habits and sometimes they even learn new work skills. They are often hired by these agencies who see that these people do have something to offer when they are given a chance to do a job.

We can also give Title V participants vocational training. We look to MDTA as much as we can, but we haven't got as much from them as we probably will after we bring our people up to scratch on their basic education. A good many of our people don't have enough Basic Education to qualify for MDTA Training. So a part of our job is preparing people to go into MDTA training. We also use the vocational training of the public schools. We try to get this as much as we can on a gratis basis, and when we can't, we can pay for teacher time.

Another thing that our people lack is motivation to go to work. They have just lost all hope of ever becoming anything in this life, so they have to be motivated to realize that they are human beings and have the potential of human beings. Thus, we provide very heavy counseling services.

In addition, we have counseling for family problems, because sometimes, when these persons are educated and given a work skill, we then discover they have family problems that prevent their being employable. For instance, a man cannot manage his money; his wife cannot manage his money. He is always in debt; his salary is always being garnisheed. So we have to give the family what I call adult education. We have to give them training in money management for use of credit, how to shop, and so on. We also give the wife help in child care if she needs it and this kind of thing. We have very heavy social services. We are what we call a comprehensive program.

Title V is really a continuation of an on-going program in the Welfare Administration which just began getting started in 1962 under the 1962 Welfare Amendments to the Social Security Act. Before we really had a chance to see what was happening in that program, which is called the Community Work and Training Program, Title V came along. But this is all right, because Title V gave us a lot more money and is letting us do some things we couldn't do before.

I think you may be interested in some statistics about the ongoing Community Work and Training Program. Services in that program are not nearly so comprehensive as they are under Title V. Mostly individuals are placed in what I call work experience situations. Even at that, I saw a quarterly report the other day for the months of April, May and June showing that almost 5000 persons had left welfare as a result of having been in our Community Work and Training Program. I think this is pretty good. The whole Community Work and Training Program at this point has something like 21,000 families in it -- that is, an individual from each of these families. When you add up -- we usually count about four persons in a family -- you can see that many individuals are helped when you work on the head of a family.

Under Title V, we are just beginning to get returns, and we are being much tougher with this program. We are seeing that it has in it these other ingredients which I have described, these enriching ingredients. I thought you would be interested in hearing about this program because nobody else is doing this kind of thing for severely disadvantaged adults as far as I can see.

This is a program which calls on all the different kinds of training programs, Mr. Crum, that you talked about, in order to give an individual what he needs, and uses all the community resources.

So, if you people hear of a Title V project in your community, please cooperate with us. We need you. The contact is the director of the local public assistance agency.

(Applause.)

MR. WILLIAMS: I wonder if I might ask you a question, Miss Hamer.

What percentage of your people are over 50?

MISS HAMER: I am sorry, I don't have that statistic, but I will have it when we collect our statistics because we have a form called the "Termination Form" when the person leaves the program, usually to go into employment, and it has all this kind of information on it. We are also collecting what we call characteristics of the participant. So we are hoping one of these days to have this kind of information.

However, I can tell you that a good many of our people are in the 45-and-over group.

MR. WILLIAMS: It will be interesting when Mr. McKechnie brings his paper up to date to see if the same kind of bias against older persons exists in your program as in the MDTA and other programs.

DR. CRUM: May I make a quick comment? This program, to me, is one of the very important ones and has not really received the type of public information it should have, so I am very glad the presentation was made.

We keep talking about the "disadvantaged" -- I don't know if you like that word or not. But whatever the problem of this individual is, this is a program that is really zeroed in on it. And unfortunately, or whichever way you want to look at it, the statistics today on manpower training are pretty much in favor of the high school graduate. It is still not reaching this type of individual.

I want to give you one fact I meant to include. That is, that in a national study last year of dropouts from institutional training, conducted both by the Department of Labor and HEW, it was found that the older trainee did drop out, but when he dropped out it was primarily because he had been offered employment. This is rather interesting because, if you read the study, you will find out that people dropped out for a host of reasons, personal problems, disinterested in training, wanted something else, and so forth. But in the case of the older worker, he had a chance to work and of course he took it.

MR. WILLIAMS: Dr. Carstenson.

DR. CARSTENSON: We also have a program under OEO, the Office of Economic Opportunity, that has just been funded, for a total of $1.5 million. This is a grant to work specifically on older workers, with a priority on the 65-and-over group, but going down to 55, to employ older and retired low-income farmers to beautify the highways. We are just in the beginning stages of it and just have our money now.

MR. WILLIAMS: Thank you.

Now, we have some work to do and I want your cooperation in bringing out some significant findings.

I know there have been a great many significant things said today and we have all said to ourselves, as they were said, "Ah, that is significant." And now I want to bring them out. Who is going to be the first to make a case for posterity here?

MR. EMIL LISAK (Division of Vocational Education, State of New Jersey): Before coming to New Jersey I was in Ohio and I directed and supervised MDTA programs. I was quite fortunate because I was also involved in the GI training in Public Laws 346 and 16, and there is some similarity.

But the thing I want to bring out more than anything else is the economic advantages in this MDTA program. Because I look at it as an investment in society that eventually will pay dividends. I can strongly say, and be assured of it because of my experience in the Public Laws 16 and 346, that any money spent under MDTA will come back to the government in forms of income tax returns in a very, very short time.

MR. WILLIAMS: Let me interrupt you for a second and see if I can't make this point, because I know what the sliderule boys are doing today in the government at the Budget Bureau. They are figuring cost-benefit ratio. They are saying "We have a certain amount of money to put into training. Now, will we get more money back in terms of the income tax if we direct it toward the old?"

And some guy gets a slide-rule and says we will get $2.3 for every dollar invested in persons under 25 and only get $1.8 in dollars invested for persons over 50 -- those figures are out of a hat. What can we do about that?

MR. LISAK: I don't think it is a question of one program against another.

MR. WILLIAMS: Unfortunately, it is. This is what is happening in Washington today, so we have to give some guidance on this.

MR. LISAK: Can our group make a statement or make a strong recommendation?

MR. WILLIAMS: Let's hear it.

MR. LISAK: That no matter what kind of a program it is, if it is an investment in people, this is good, because investing in people is an investment in your government.

MR. WILLIAMS: I think this is a point.

DR. CARSTENSON: I will give you the answer to it, because we have had to wrestle with it up on the Hill, and we are having Senate hearings the next two days on it. The answer is very simple. While the government gets more return on its dollar invested for young people in the long haul, nevertheless the old people are part of society and are voters, which in Congress can and does overrule the Bureau of the Budget on this kind of issue.

MR. WILLIAMS: Let me offer you two propositions and see if you can agree with these as the consensus of what we have been talking about.

First of all, on the question of whether or not it pays, the comparison ought to be not the cost of training an older worker versus the cost of training a younger worker, but the cost of training an older worker versus the cost of not training an older worker.

Can we agree on that?

(Chorus of "yes.")

Let's get that in as a significant thing.

The second thing, it seems to me, that we should get out here is you can't apply the same kind of cost-benefit ratio to problems of human beings that you apply to the problems of most effective bombing techniques. Can we agree on that? Because that is what is happening in Washington today and it seems to me we have to make a statement to the effect -- I am a terrible chairman but let me throw this out as a question: Don't you think we have to make it clear that even if it didn't return more money than you spent, it would still be worthwhile because we are dealing with the welfare of human beings here?

Bill.

MR. JACOBY: I am wondering as to whether or not we can't put it down as a number of things: Why do we want to train these people? First of all, it is as you stated here, the cost of training versus not training; to put them back in the employable, productive labor market.

The second one could be the moral responsibility within a community, not only to the individual wage earner, but to the wife and the children coming along who are equally affected, if not more greatly, than the individual wage earner that we are talking about. It is the children coming along, and grandchildren, too, because this is all an integrated family component.

Thirdly, there are, I am quite sure from my experience, a good many skills of a mature nature which can be utilized by industry and commerce. Simply because the person is older it does not mean that he is not just as competent. I am talking about these skilled trades, Mr. Piron knows only too well, that he is responsible for and that I have been responsible for over the years. A tool and die maker isn't worth much until he is about 40. You take a good many of your maintenance men -- about the same age. And I think some of the statistics here that Mr. Riley gave this morning are indicative of the fact that these people are now skilled and they are at this age, at the very point. Am I right, Mr. Piron?

MR. PIRON: Yes.

MR. JACOBY: No matter how much apprenticeship they have gone through, it just takes time in order to make a highly-skilled individual out of them.

MR. WILLIAMS: Well, no question. It seems to me that, since you are the recorder, you get that down.

DR. EISDORFER: I am going to switch hats. I spoke this morning as a psychologist and now I am going to speak as a physician.

One of the problems I think we see specifically in older people is the close relationship between psychological and physical problems as well as economic and social problems. The integration is a very, very close one.

Let me just report on something which may seem far afield, but I hope I will bring it back.

If a man enters a hospital at age 65 as a mentally ill patient he will probably have a life expectancy of about 18 months. We are recognizing that he will be provided with the appropriate physical care. In a number of institutions they have been attempting rehabilitation programs. Among the most successful ones are work rehabilitation programs, not merely physical therapy or occupational therapy where they knit mats or make cotton doilies, but in one hospital, for example, a male therapist had them putting up filing cabinets which were shipped knocked down. They were taking men who hadn't spoken in five years who were now speaking -- and I won't tell you the other benefits except that they doubled the life expectancy -- there are three or four such hospitals and domicilliaries --and these now maintain productive and happier people; not just alive, but happy.

The reason I raise this is it doesn't seem to matter whether you help these people physically or mentally, the result is longer life and happier people. We now have a Medicar bill. I am going to challenge the cost accounting system. If we are going to pay for the cost of hospitalization and medical care for these older people, I think one of the ways to save money is to make these people more productive and more adapted to the environment, not to make them wards of the state -- which is in effect what they are.

I don't know how we phrase this into a recommendation, except that if we have accepted the responsibility for the physical care of older people -- and we have, by law -- we now have to throw this into the cost accounting pot and recognize that, by retraining the older worker, by having him become a productive human being, I think we tend in the long run to save ourselves money in other areas where we might not otherwise look for it.

MR. WILLIAMS: That is a good significant finding and I think we should get it in there just like that.

How about the area of special techniques? I know we have had a great deal of discussion here about the various types of techniques that are needed for vocational training for older adults. What can we offer to the general conference on that?

MISS HAMER: Well, I think that vocational training in itself is not enough. I think it has to be within a comprehensive program because of the needs of older people. I think that they should be looked at in relationship to their needs as individuals and given whatever else they need, not just the skill training. They might need other things, like extensive counseling or something of that sort.

MR. WILLIAMS: Maybe this is an area where there are gaps. Maybe we should call for much more work in the field of learning about the kinds of techniques which will be more effective in the training of adults.

DR. EISDORFER: I second the motion.

MR. WILLIAMS: How about it, Dr. Kopas? I know you have some good ideas on the subject, but can we learn more?

DR. KOPAS: That is right.

DR. BELBIN: Can I say something now?

MR. WILLIAMS: Go ahead.

DR. BELBIN: This is about special techniques and methods.

One of the great differences between practice in the United States and the European countries is that in the United States you are a very large country indeed, and you are operating many of your programs on the basis of community projects, a term about which we hear practically nothing at all in Europe. And this means that there is a great deal of local work being carried out all over the States which is unrelated and uncoordinated. And I think that the effect of this is going to be that some community projects are going to work very much better than other community projects, to put forward a truism.

What we don't know is how well conducted some of these projects are going to be in their individual locations. And when we come to consider the relative advantages of carrying out independent community projects, designing them on the spot for particular jobs, against the merits of having training procedures and methods designed centrally by experts and then administered in the various localities, we see that we are examining the pros and cons of alternative systems.

Now, as you are dedicated to this sort of community-project approach in the United States and having a very decentralized system for the operation of these projects, I have no doubt you must be fully conversant with the advantages of carrying out this particular approach. But I think it would be well not to lose sight of the other approaches which are based on the development of professionalism at the central level and on the development of training methods and procedures of proved success.

One finds this sort of approach developed to a very marked extent, for example, in France, where the FPA programs are in fact all programs that have been developed by headquarters. They are applied uniformly throughout the FPA's 100 centers in France. And this means that some of the programs, in fact, look extremely refined and sophisticated, as you can imagine because they are based on the most expert knowledge and intuition in this particular field.

Clearly French or European experience cannot be transferred to the United States. Here you have quite a different society with quite different problems. But I think there are enormous advantages to be gained by having a sort of library on training methods, some sort of central storing house, whereby it is possible for people to search for training systems, procedures and methods that might contribute to solving some of the problems that come to the fore in the teaching of older workers.

MR. WILLIAMS: I think that is a very useful comment.

MR. LISAK: We need a little more community action, to get more people involved. We need not only money, but time -- community leadership time.

Of course we don't all have people like Mr. Mott, the father of the Mott Foundation at Flint, Michigan. In Flint, if you need a million dollars, you go see Mr. Mott and if you have a good reason for it he writes you a check. But this is just one way to help a community. We have to get many more of these Motts in these communities to contribute not only money, but their leadership, and show that we do care about these people who are insignificant, who have been looked down upon, the poor, the colored, and the minorities. We must make a concerted effort to get these people involved, and make them feel that they are part of the community, and to make them feel that it is their responsibility to participate in community functions.

I think this is going to overcome this emotional and social barrier that this particular individual we are talking about mostly has had over many, many years.

MR. WILLIAMS: That is very, very significant.

Now, we have got time for one more observation. Who wants to have the last word?

Yes, sir. Would you identify yourself.

DR. JOHN B. KAISER (American Library Association): It seems to me we could well afford to put into the record of this meeting something that several of the speakers have emphasized, and then we have dropped the subject without discussing it much, namely the continuing need for the greater recognition of individual differences in developing training methods. Two or three speakers even this afternoon emphasized it but I believe it is worth putting into the record.

MR. WILLIAMS: Very well put, and we will get that into the significant findings.

MR. McKECHNIE: I would like to make one comment and that is the title of our panel "Vocational Training for Adults -- Does It Pay? Are Special Techniques Needed?"

I think we can say as a panel it has paid and it will pay. I presented some statistics. There are more studies being done in the area of benefits and costs.

Are special techniques needed? I think Dr. Eisdorfer's paper at least indicates, on the theoretical experiments that he has performed, that we do need some special techniques, perhaps a slow-down in the rate of trying to feed the information to the older worker, and then the job for which we train the older worker be regulated at a much slower pace than for younger workers.

So I think we can say to the first, "Does it pay?" "Yes." And "Are special techniques needed," we can say "yes" again.

MR. WILLIAMS: This lady.

DR. LAWS: From the standpoint of special techniques needed, we should not fail to emphasize that we need to capitalize on individual differences. I don't believe we can conclude that we must have slower techniques for all adults. I think we have to remember there are concrete differences. It depends on the kind of adult group that we have, the individual we have. Particularly, though, we need to point out the fact that we do need special processes for adults and that instruction should be related to their life processes, not to the life processes of youth, but rather the kinds of roles that they are carrying in society, and the emerging roles which they may carry as they mature in the occupational world.

MR. WILLIAMS: Very well put.

Blue.

DR. CARSTENSON: I think one thing that might be helpful is a new source of funds to concentrate on the problems of technology, of new techniques, of training under Title I of the Higher Education Bill that was passed this past year, which is to assist universities to serve the community on community problems. In the hearings there was a great deal of discussion about the problems of older people, and in various States they are just getting under way on this program. They don't have the money yet in the States. But when this does come, there will be funding for special university assistance on various problems such as these.

Secondly, there will be a bill offered this year for secondary adult education, unlimited to job occupations. They will be by Senator Hartke. And you might keep an eye on that one.

MR. WILLIAMS: Dr. Eisdorfer.

DR. EISDORFER: I think the comment made by Dr. Laws was very appropriate. Training for what? Life has changed. Maybe we ought to re-emphasize that. We are now talking about the kinds of jobs that no longer require a lot of physical strength -- some do. But typically this is shifting. We are shifting the job pattern. What we haven't talked about, it seems to me, is the significance of maturity.

Just to give you an exaggerated example, it turns out now that the kind of job has shifted from where you expend a lot of energy picking up a pipe, and this didn't seem to matter, but now a minimal amount of energy is expended pressing a button that can wreck us all. You know, there are two men sitting under a bunker somewhere and if they expend very little energy the end result can be a monumental expenditure of energy.

(Laughter.)

MR. WILLIAMS: "Monumental" is hardly the word.

DR. EISDORFER: But in a small manner I think the picture Dr. Kopas showed us was very similar. A man presses a button and a number of drill presses can operate simultaneously. Thus, we are talking about judgment and it may be the older person rather than the young who has this judgment. I think we should go on record as saying we may be doing ourselves a favor by utilizing the older worker in view of such factors as maturity and judgment.

Perhaps another point to be made is that more and more vocational jobs are becoming professions.

One of the things that characterizes a professional or high-level management man is continuing training -- subscription to journals, attendance at meetings like this, and so fort We never talk about on-the-job or upgrading training because the top-level professional neve quits. He is always retraining himself.

I would like to suggest that, as more and more vocational jobs begin to approach professional jobs, we need a constant training process, so the business of on-the-job training 5 years from now may be a historical question rather than an up-to-date one. We really have to make every major management and government agency aware of the fact that this just has to be a part of life.

MR. WILLIAMS: You have raised a lot of questions there. One thing that intrigues me: you talk about this guy pushing the button on the drill machine. The real new skill is not pushing that button. There is really no skill involved. The new skill is programming the machine so when you push the button it will do all these tasks.

You guys who are working on the learning abilities of older people have got to come up with a way of helping those people understand the new math.

MR. WILLIAMS: This is where the older person gets off the train when it comes to doing something which requires the new math or something of that kind -- wow.

(Laughter.)

MR. JACOBY: Dr. Eisdorfer, in reality you are subscribing to what Joe Kopas has been saying.

DR. EISDORFER: Oh, yes. I mentioned -- it was almost as if we had arrived at the same point from two different angles. We talked about individual teaching devices. And my work would support this entirely. I think this may be one of the best ways to have a man learn -- so he can make his mistakes in private. He knows he has made a mistake and doesn't have to expose himself. When he reaches a high level of training, then he can expose himself.

DR. KOPAS: May I say just one thing. I don't know if I have emphasized this enough. The best time to train the unemployed is while they are employed.

That is number one.

Number two, I am hoping --

MR. WILLIAMS: Let me interrupt you right there. That is pretty poor advice to a guy who is currently unemployed.

DR. KOPAS: I know it is. Now we come to the one who is currently unemployed. Now, that type of training, in my estimation, is more difficult.

I am saying if we could assure the employer that we can train his currently "employed unemployables" -- (because if you will look at the statistics, you will find that if 85 per cent of our present employees had to seek other employment, they probably wouldn't be hired. These are the unemployables who are employed on a shaky basis. Modern technology is passing them by.) -- then maybe we could convince the employer that we have a program that could take the unemployed unemployable and train him after he is on the job. Then we wouldn't have to worry about Ulrich's system of making resumes, getting counselling, etcetera. A great deal of that could come afterwards on the job. And in most cases, the placement problem would be a great deal easier within an organization because there are so many different kinds of job opportunities.

What I am trying to say is simply this: Let's, first of all, keep as many people employed as possible, especially adults.

Secondly, let's take adults who are not employed, put them on the job and then start working with them. I believe we could save ourselves a great deal of work if we followed this plan. Everyone wants to "belong" and to "contribute." And we have to make up for that lack when he is unemployed.

I would even recommend that we subsidize a man while he is working. But above all, let's get him on the job.

DR. LAWS: Are you saying he is more educable while he is employed?

DR. KOPAS: Yes, definitely.

DR LAWS. I think that is a conclusion we want.

MR. WILLIAMS: I think what you say is undeniably true. The only question I have raised is: How much can you apply it? You have an awful lot of people who are unemployed and you can't in a hundred years convince any employer to take them on until you can equip them with some kind of skill.

DR. KOPAS: Don't say "can't". Let's try some of the experiments. Let's try some of this money we are already spending on the symptoms. Let's use some of it on the cause.

MISS HAMER: We are doing that in our program, in effect. We are getting employers to take our people on and they are in a very rough condition. And while they are in work experience, we give them vocational training, give them education simultaneously. So in effect, we are doing what you are saying. But it would be too expensive for the whole country to do it the way we are doing it because we are paying assistance grants to these people to support their families.

DR. KOPAS: If they are on the job, the employer takes care of that.

MR. WILLIAMS: The employer is not paying it.

DR. KOPAS: Let's put it this way: The employer is paying some of the bills now and not getting his money's worth. Putting through this kind of on-the-job training program will take real work and experimentation. But let's get some community action on it. We'll save a lot on other kinds of training that are more expensive. In any case, the employer is going to pay a very large part of the bill -- whether through wages or through taxes.

MR. WILLIAMS: I think we can all agree, can't we, that we ought to give more emphasis to trying to put older persons in an employment situation on a job as an adjunct to the training process.

DR. KOPAS: That is it.

MR. WILLIAMS: How about the education people? Will you buy that?

MR. WOODS: Let me say that is a nice way around my objection. I have no objection.

(Laughter.)

MR. WILLIAMS: Okay; good.

Yes, sir.

MR. LUER: This question has been bothering me ever since Dr. Kopas gave his talk. He mentioned subsidizing the employee. I don't see how this could be worked unless you subsidize the industry, itself, to pay for this retraining.

MR. WILLIAMS: We do it now under MDTA. We subsidize the employer. We are paying him to train the employee and paying for the employee's upkeep.

Blue.

DR. CARSTENSON. We are just undertaking such a project for Iowa, subsidizing people for employment, and we have an agreement with the employer to train on the job. This is under Manpower.

MR. WILLIAMS: It has been a very, very fruitful day, very provocative, very interesting for me. I can't remember when I have been associated with a group that has been more lively, more stimulating, more helpful. Thank you very, very much.

(Whereupon, at 4:10 p.m., the meeting of Panel II was adjourned.)

ERIC Clearinghouse
MAY 3 1968
on Adult Education